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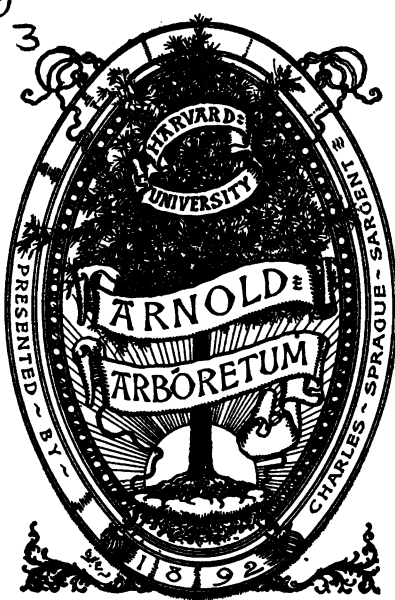
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THE PHYTOLOGIST FOR 1849.

Pp. 385—744.

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THE
PHYTOLOGIST:
A
POPULAR
BOTANICAL MISCELLANY.

CONDUCTED BY
EDWARD NEWMAN.

VOLUME THE THIRD.

(CONTINUED).

Pl. 2.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLIX.

Yet happier, in my judgment,
The wandering Herbalist, who, clear alike
From vain, and that worse evil, vexing thoughts,
* * * * * peeps round
For some fair floweret of the hills, or plant
Of craggy fountain ; what he hopes for, wins
Or learns, at least, that 'tis not to be won.
Then, keen and eager, as a fine-nosed hound,
By soul-engrossing instinct driven along,
Through wood or open field, the harmless man
Departs, intent upon his onward quest.

WORDSWORTH.

P R E F A C E.

IN the annual address to my subscribers at the close of 1848, I expressed my willingness to increase the monthly quota of letter-press without any additional charge, provided my contributors would send a greater amount of communications: the result, however, has shown that the usual thirty-two pages has sufficed without delaying a single contribution; and consequently there has been no necessity for carrying out the project. Another mode of adding to the value of the 'Phytologist' has been suggested by a friend, and I feel confident it will give satisfaction to my subscribers: it is to publish, without any additional charge, a carefully engraved figure of every newly-discovered British species. On an average the annual increase of species, exclusively of the genera *Rubus*, *Rosa* and *Salix*, which I totally exclude from my proposition, may be taken at a fraction less than four, and the cost of four engravings does not present any material obstacle; indeed, were the expense greater than I ought to incur, I feel confident that several of my friends will be willing to afford pecuniary assistance. I therefore beg to announce that from the present time I shall be happy to give a finished figure of every new plant that may be discovered: a few conditions must, however, be observed.

First. Specimens must be submitted to a competent botanist for his decision as to the name, distinctness and novelty of the species: Mr. Borrer, Mr. Watson, or Mr. Wilson, of Warrington, occur to me as unexceptionable referees, and I trust neither of these gentlemen will hesitate to lend their assistance.

Secondly. Perfect specimens of the plant must be sent to the her-

baria of the Linnean and Botanical Societies, labelled with the name, locality, date and name of communicant.

Thirdly. Perfect specimens, in a recent state, if possible, must be transmitted to Devonshire Street for the purpose of being drawn, or for comparison with drawings accompanying them. Drawings made by the communicant will be preferred, and magnified details of diagnostic characters, where the new plant resembles a generally known species, will be acceptable.

Fourthly. A careful description must accompany the drawings, &c.: if the plant be new to science this, of course, must be original, but if previously known as a continental species, a translation from a standard author will suffice.

I sincerely hope that British botanists will see the great utility of this project, and will cheerfully and heartily co-operate with me in carrying it into execution. I have already received such manifest proofs of kindness and goodwill from my contributors that I feel no hesitation in again soliciting their assistance: an additional expense will now be incurred, and this can, I think, be readily defrayed by an increased sale: a larger number of copies will be prepared, and the exertions of my friends are most earnestly requested in the obtaining of additional subscribers.

In looking back on the past year, it does not occupy a prominent place in the botanical annals of the country. Beyond sundry proposed subdivisions and changes of name, thus imparting a superficial idea of novelty, the botanical additions for the year 1849 have been very few.

Poterium muricatum of Spach, the *P. polygamum* of Waldstein, has been found (Phytol. iii. 707) by several botanists near Cambridge; my valued correspondent, Mr. G. S. Gibson, subsequently met with it at Heydon, in Essex, and at Boxhill, in Surrey; and Mr. Kirk (Phytol. iii. 715) has found it in various places on the slopes of the Coventry and Leamington railway, in Warwickshire. This plant is to be regarded as an old and probably not uncommon inhabitant of this

country, where it has always been confounded with the still more abundant *Poterium Sanguisorba*. I am not competent to decide on its specific distinctness from that familiar plant, but am willing to put faith in the opinion of those who have thus decreed.

Teucrium Botrys has again been found at Boxhill, and Messrs. Borrer and G. S. Gibson pronounce it a true native (Phytol. iii. 707).

Bromus arvensis, for which other species have been so often mistaken, has been found introduced in corn-fields in the same locality, and by the same energetic botanists.

New localities have been reported for the following rare, or perhaps, more correctly speaking, little-known species.

Filago spatulata has been found by Mr. Varenne (iii. 385) at Inworth, in Essex.

Udora canadensis has occurred in a number of localities almost sufficient to induce the conclusion that this plant has been hitherto most negligently overlooked. The first of these localities, in the Lene, near Nottingham, is recorded by Miss Kirby (iii. 387), who remarks that Mr. Mitchell's attention was attracted to the circumstance from seeing pieces of the plant scattered about the meadows after a flood. Mr. Kirk (iii. 389) has found it in great abundance at Watford Locks, in Northamptonshire. Dr. Johnston found it (iii. 541) at the lake at Dunge Castle, so far back as 1842, and again in abundance in 1848, in the Whitadder or its tributaries: I believe these localities are in Berwickshire. And last, Mr. Brown (iii. 647) informs us that it forms large submerged masses in the Trent. Fashion, and perhaps the love of novelty, have changed the name of this plant from *Udora canadensis* to *Anacharis Alsinastrum*. Is there sufficient botanical ground for the change? Dr. Johnston says (l. c.) "I have specimens of *Udora canadensis* from Dr. P. W. MacLagan, gathered in Detroit River, July, 1848, and they exactly resemble our Whitadder plant, as found at the Newmills station:" other excellent botanists express the same opinion.

Woodsia Ilvensis. Mr. Stevens says of this species (iii. 392) "This rare and handsome little fern I found in considerable abundance on very steep, crumbling rocks, amongst the hills dividing the counties of Dumfries and Peebles, in July last; it is growing in dense tufts in the crevices of the rocks, and very luxuriant, many of the fronds measuring nearly six inches in length." It is interesting to know (iii. 739) that as many as a hundred plants of this rarity still exist at the old Caernarvonshire station, Llyn-y-cwn.

Woodsia alpina has reappeared at Ray's old Caernarvonshire station, Glogwyn-y-Garnedd (iii. 739).

Simethis bicolor "has been found (iii. 453) by Mr. Thaddeus O'Mahony, growing in a perfectly wild situation on hills near Derrynane Abbey, the seat of the O'Connells. The hills where this plant grows have probably never been turned up, and the plant has certainly never been cultivated in a neighbouring garden." — Dr. Harvey in the '*London Journal of Botany*.'

Linaria supina. In a report of the ordinary meeting of the Botanical Society (iii. 536) it is recorded that a station has been found for this plant by Mr. G. Maw, at St. Blazey's Bay, in Cornwall.

Hypericum linariifolium. Mr. Goulding announces (iii. 643) that he has found this species by the side of a hedge, ascending a hill from Blakstone to Maristowe, near the river Tavy, Devon; and adds that it is now to be found plentifully about the Morwell Rocks, by the Tamar. Mr. Goulding kindly transmitted a specimen, which Mr. Watson pronounces to be correctly named.

Leersia oryzoides. Dr. Bromfield has a detailed account of this very local grass (iii. 681) as found by himself in the New Forest, in Hampshire: the paper contains some useful remarks on characters by which it may be readily distinguished from *Phragmites communis*, a plant with which, in the English stations, it is commonly associated.

Melilotus arvensis is reported by Mr. G. S. Gibson (iii. 707) to occur in the parishes of Heydon and Stratford, both in Essex.

Carex Persoonii. Mr. Baker (iii. 738) has found this mountain *Carex* at Snailsworth, the most western of the dales which intersect the group of hills situated in the north-east of Yorkshire.

Polypodium Phegopteris. This fern, hitherto supposed to be confined to the northern and western counties and a solitary locality in Sussex, has been found (iii. 741) by Mr. Edward T. Bennett, in the Forest of Dean, Gloucestershire.

I cannot allow the opportunity which this annual address affords me of noticing Dr. Bromfield's admirable papers on the Plants of Hampshire. That contribution has indeed extended to an unprecedented length, but it contains such a mass of new and useful matter and of interesting observations incidental to the leading subject, that it assumes a peculiar botanical value, quite independent of its utility as a county list and guide to localities. The comments on each species would have formed excellent contributions to these pages even if printed as separate articles.

Mr. Watson's admirable paper, entitled "Who knows *Viola canina*?" clears up and corrects much that was previously obscure and erroneous: I much wish he would favour this Journal with brief diagnostics by which the three species of Smith, *Viola canina* or *sylvatica*, *V. flavicornis* and *V. lactea* might be readily distinguished from each other.

Among the books noticed during the year, I may mention the completion of the 'Flora Hertfordiensis' and the second volume of 'Cybele Britannica,' as real contributions to the science of Botany, more especially in connexion with the British Islands. Dr. Balfour's 'Manual of Botany' is a good educational work.

My readers will, I doubt not, be pleased with the notice (iii. 717) of Mr. Miller's new work, entitled 'Foot-prints of the Creator,' a work the object of which would appear to be to act as an antidote to the

once celebrated 'Vestiges of the Natural History of the Creation.' My own opinion respecting the poetical hypothesis of Lamarck, as revived by the author of the 'Vestiges' is very decided: I consider that the said author argues throughout on facts which he either assumes or takes for granted, and that such a proceeding can by no possibility lead to just conclusions. In fact, the book is a pleasing poem, and like other poems, it mixes a mass of fiction with a modicum of truth. Still I fear Mr. Miller is hardly the man to answer the author of the 'Vestiges:' he may be called the poet of geology as his fellow-labourer is the poet of philosophy: both possess a fatal facility of writing, and an elegant, fascinating style, that appeals strongly to the feelings but weakly to the judgment.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
December 12, 1849.

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ADVERTISEMENT.

'THE PHYTOLOGIST' will be continued both as a monthly and an annual publication. As a monthly, it will contain thirty-two pages of letter-press, occasionally accompanied with figures of New British Plants; it will be on sale two days before the end of every month; and will be charged one shilling. As an annual it will be sold on or about the 1st of December; will contain twelve monthly numbers, bound and lettered uniformly with the present volume; and will be charged thirteen shillings. An alphabetical list of contributors is published once in the year.

THE PHYTOLOGIST.

Occurrence of Filago spatulata at Inworth, Essex.

By E. G. VARENNE, Esq.

IF you and your readers are not yet quite tired of communications respecting *Filago germanica*, and its near allies, perhaps you will allow me to record the occurrence of *Filago spatulata*, Presl, in a field of cultivated land at Inworth, in this county, where it was growing in great profusion about the end of last month.

It may serve as a hint to botanists (who pursue their researches in agricultural districts in the autumn months) not to neglect to secure specimens when opportunity serves, to state that two or three days after discovering the plant, on visiting the locality with the view of obtaining a few specimens for distribution, I found the field entirely ploughed up and the habitat temporarily destroyed.

Filago spatulata is large and straggling, furnished with numerous loose leaves, which are all more or less spatulate, and nearly entirely conceal the young clusters of flowers. It bears a rough resemblance to large specimens of *Gnaphalium uliginosum*, and would have been passed over for the latter had not a few plants been gathered for examination. The mode of growth of this species in assuming the prostrate form is peculiar, and perhaps worthy of notice. In the few specimens which attempted to grow erect, the branches hung downwards from the stem, somewhat after the manner of the branches of the weeping ash. A form with a short upright stem, from the lowermost portion of which several trailing branches were given off, was found about Kelvedon during the past summer.

The heads of flowers, when fully developed, have very little hairiness or down on the outer surface of the scales; the number in the cluster in those examined was about twelve. The clusters are neither numerous nor very conspicuous; and the regular divaricating character of the branches, as usually found in *Filago germanica*, is not to be met with in the Inworth specimens of *Filago spatulata*.

E. G. VARENNE.

Kelvedon, Essex, November 13, 1848.

List of the rarer Plants growing near Doncaster and Huddersfield.

By ELIHU BERRY, Esq.

IN your November number of the 'Phytologist,' there are two articles treating on the distribution of the rarer plants growing in the neighbourhood of Doncaster and Huddersfield; in continuation I beg leave to forward for your insertion in the next number, some of the rarer plants growing about Barnsley, a locality mid-way between the above places; should this be acceptable to your readers, I shall in future extend my researches, and report upon them.

Ranunculaceæ. *Ranunculus hederaceus*, in a pond corner of White-cross-wood, Worsbro' Dale, plentifully, and several other places.

Nymphæaceæ. *Nymphæa alba*, abundant in the river Dearne, two miles below Barnsley.

Fumariaceæ. *Fumaria claviculata*, in Mottram-wood.

Violaceæ. *Viola odorata*, about Monk Bretton priory, and the Yews-farm.

Leguminosæ. *Anthyllis Vulneraria*, on the canal bank by the Oakes-farm. *Arthrolobium ebracteatum*, in the same situation.

Rosaceæ. *Sanguisorba officinalis*, in the meadows side of the Dearne below Barnsley.

Onagraceæ. *Circæa Lutetiana*, abundantly in the above locality.

Umbelliferæ. *Oenanthe Phellandrium*, in a pool by Cliffe-wood. *Sanicula Europea*, in a coppice, Pag-moor. *Apium graveolens*, Grange-lane. *Ægopodium Podagraria*, side of the Dearne below Monk Bretton priory. *Angelica sylvestris*, White-cross-wood. *Torilis Anthriscus* and *Anthriscus sylvestris*, very common here.

Araliaceæ. *Adoxa Moschatellina*, in a shady lane by the side of the Dearne, near the village of Ardsley.

Valerianaceæ. *Valeriana officinalis*, in Scorah-wood, Ardsley.

Compositæ. *Inula Conyza*, in a field by Smithy-wood. *Chrysanthemum segetum*, one mile north of Barnsley. *Centaurea Cyanus*, in a field on Burton bank.

Labiataæ. *Scutellaria galericulata*, on the canal banks, Ardsley. *Ballota nigra*, about Monk Bretton. *Clinopodium vulgare*, on the road-side going to the railway station. *Lycopus Europeus*, in the Grange-lane.

Plantaginaceæ. *Plantago Coronopus*, on Nesbro-hill, plentifully.

Alismaceæ. *Sagittaria Sagittifolia*, in the canal, Ardsley, plentifully.

Naiadaceæ. *Potamogeton perfoliatus*, ditto.

Liliaceæ. *Allium ursinum*, plentifully in the woods.

Juncaceæ. *Juncus bufonius*, abundant in every moist place, along with several other species.

Iridaceæ. *Iris Pseudacorus*, plentiful in the bottom of Scorah-wood, Ardsley.

Filices. *Polypodium vulgare*, *Asplenium Trichomanes* and *Ruta-muraria*, plentifully on the garden wall, Swarthe-hall and Birk-house.

Graminaceæ and *Cyperaceæ*. I have omitted to mention their distribution and localities, as sometime I may favour you with a separate article upon them.

ELIHU BERRY.

Park-house, Barnsley, Yorkshire,
November 13, 1848

Occurrence of Udora in the Lene, near Nottingham.

By MISS MARY KIRBY.

MR. JAMES MITCHEL has kindly favoured me with a specimen of *Udora*, not in flower, but apparently identical with the plant of Fox-ton reservoirs, discovered by himself in the Lene, a rather rapid and very dirty stream, tributary to the Trent. After the subsidence of a flood, Mr. M. informs me, his attention was arrested by pieces of *Udora* left upon the grass in Nottingham meadows; he traced the plant to the river, and found it growing in great profusion for about a quarter of a mile in extent.

Will you allow me to insert a few addenda to the 'Flora of Leicestershire,' for which I am indebted to botanists in the county? The note of interrogation to the *Ophrys apifera* may be erased, the Rev. T. C. Holland having supplied me with the locality "near Kegworth."

Ranunculus Lenormandi.

Fumaria micrantha.

——— *capreolata*.

Mr. Holland observes, "It is remarkable that this flower, which was not previously in the field, has sprung up profusely on every heap of earth thrown up in digging the foundations of the nunnery at Loughborough."

Vicia Bobartii.

Lonicera Xylosteum.

Galium erectum.

Centaurea nigra, var. *radiata*.

Orobanche elatior.

Festuca myurus.

Avena strigosa.

Lolium multiflorum.

Glyceria plicata.

MARY KIRBY.

Friar Lane, Leicester, November 14, 1848.

Note on, and Query respecting the Flowering of Mentha sylvestris.

By GEORGE LAWSON, Esq.

YOUR correspondent Mr. Snooke, whom the inaccuracy of our Floras led to walk a distance of eleven miles and back in vain, in search of the lovely Menyanthes, will no doubt find many sympathizers among your readers, for few field-botanists there can be but have occasionally experienced disappointment and chagrin in a similar way.

In the end of September last I, too, found occasion to enter into deep sympathy with Mr. Snooke, having, along with a friend, walked eleven long miles and back in the vain hope of seeing *Mentha sylvestris* in flower, at our Sidlaw Hill station. I had previously seen the broad patches of the plant in August; but there was at that time no appearance of its flowering, and as the months of August, September, and October are those indicated in botanical works as the flowering period, I thought the end of September a good time, and accordingly set out at that time on a journey to the station to see the plant in flower, being accompanied by my friend Mr. John Syme. However, on arriving at the *Mentha* ground, we could trace no symptoms of flowering, and although the plant seemed in good health, there was no reason to suppose it would flower this season, the season being so far advanced, and not the slightest appearance of a flower-bud.

I do not mean to find fault with our botanical authors for our Sidlaw plant not flowering this season, the object of the present note being to inquire whether the *Mentha*, in the more genial clime of England (where I believe it is not a rarity as with us), is ever observed to remain barren for a season? If not, may the circumstance of its not regularly producing flowers at the Sidlaw station militate against its nativity there? Perhaps some of your kind southern readers may feel sufficient interest in the subject to favour us with the result of their observations in an early number of the 'Phytologist.'

I never saw the *Mentha* in flower, and my deceased esteemed friend Mr. William Jackson for once informed me that he had never seen it either, although he had often botanized in the Sidlaw district; but its flowering period (if my memory serves me rightly) is stated in the 'Forfarshire Flora' of Mr. Gardiner as August, September, October, and it would be useful, as well as interesting, for local naturalists to pay the station a visit during these months, for a series of years, and ascertain how often it does flower.

I may add that the plant grows abundantly by the wayside; but nowhere on the undisturbed natural heathy ground around, and this circumstance may form a slight additional objection to its nativity, if the other is sustained.

GEORGE LAWSON.

7, Saunders Street, Stockbridge,
Edinburgh, November 14, 1848.

Notice of a New Locality for Anacharis alsinastrum, Bab. [Udora, see *ante*, 387]. By THOMAS KIRK, Esq.

A FEW days ago, being in the neighbourhood of Watford, Northamptonshire, I paid a visit to Watford Locks, on the line of (I believe) the Junction Canal, thinking that as the locality is on the same line of canal as Foxton Locks, the *Anacharis* might be found in the reservoirs attached thereto. As soon as I arrived within sight of the reservoirs, I noticed that the further end of the upper one was covered with what at that distance appeared to be a species of *Potamogeton*, or *Myriophyllum*, but which on a closer inspection proved to be *Anacharis alsinastrum*, Bab. A further search showed it to be abundant in all four of the reservoirs; in some places being as much as eighteen inches or two feet below the surface of the water, and in others, more particularly in the upper reservoir, floating on the surface, but very abundant in all four.

Although I searched diligently during the short time I spent at the locality, I could not detect the least vestige of fruit. The stems are two feet or more in length, and the whorls of leaves much farther apart than in a Leicestershire specimen in a state of fructification, which I possess through the kindness of the Rev. A. Bloxam. That gentleman, however, thinks it a similar species. Probably the difference is only owing to the season in which the specimens were gathered.

The summer and winter states of many aquatics are widely different. I observed that when water was drawn from the reservoirs into either of the locks, the force of the current detached small sprigs of the *Anacharis*, which were carried through the slime into the lock, and thence into the body of the canal, so that in all probability other localities exist in the canal itself, as well as in reservoirs belonging to it.

The circumstance of this locality being connected with that at Foxton Locks, will strengthen the opinion of those botanists who regard the *Anacharis* as an introduced plant. I think there can be little doubt that one locality was supplied from the other; as apparently only female plants are found in each, but how it was originally naturalized in either of these *artificial* situations I can scarcely conjecture. Altogether, I think all the recorded localities in this country seem rather to prove it an introduced plant than a true native.

THOMAS KIRK.

Coventry, November 18, 1848.

Notes on the Flora of Dumfriesshire. By WILLIAM STEVENS, Esq.

THE accompanying observations on the rarer portion of the Dumfriesshire Flora, have been made on various occasions during the last twelvemonth's residence in that county. I do not, of course, pretend to give a complete list of all the rarities which may occur in the district, the species here enumerated being only such as have come under my own actual observation; but such as they are, they may contain some little not unworthy the notice of those who feel interested in the distribution of our native Flora. I have given them in the form of an arranged list of species, so that any remarks upon the general features of the county would be superfluous, but it will be seen that in a botanical point of view it is by no means uninteresting.

Ranunculus Lenormandi. This is of frequent occurrence in pools and ditches about Thornhill; particularly abundant in a ditch by the road-side near the ruins of Carlaverock Castle, on the Solway coast, also in the neighbourhood of Moffat.

Thalictrum alpinum. Plentiful in a rocky ravine near the Saddleback, and upon other hills in its vicinity.

Subularia aquatica. Loch Skew, intermixed with *Littorella lacustris*, which latter is by far more abundant.

Barbarea stricta. Waste ground by the Skarr water, near Penpout; it also occurs in two or three localities by the side of the Nith, between Thornhill and Dumfries, but sparingly.

Viola lutea. There is a purple-flowered variety extremely abundant on nearly all the hills bounding the county of Dumfries to the east, and indeed in almost every meadow and bank in the upper part of Nithsdale, but I have only seen the true yellow form in a single spot upon the Leadhills, near the village of Wanlockhead, where there are growing together yellow, purple, and white, with almost every intermediate shade of colour.

Geranium sylvaticum. Nithside, in Drumlanrig woods, plentiful; a variety with the flowers much smaller, and of a rose colour, occurs in a plantation by the side of the Edinburgh-road, near Carron-bridge; it is probably the same as that mentioned in Bab. Man. as found at Dollar, by Dr. Greville, and which the author supposes to be the var. *β. fastigiatum* (Fries).

Callitriche pedunculata, *β. sessilis*. Margin of Loch Skew, at the end nearest to the White Coombe.

Saxifraga stellaris. Common upon the hills on the north side of Annandale; at the face of the Gray Mare's-tail, growing with a profusion of *S. oppositifolia*.

Carum verticillatum is of frequent occurrence in marshy meadows around Penpout, Thornhill, Dalvene, &c.

Cenanthe Lachenalii. Salt marshes on the east side of the Nith, extending from about five miles below Dumfries to its confluence with the Solway.

Peucedanum Ostruthium. At the foot of Carron-bridge.

Valeriana pyrenaica. Drumlanrig woods.

Saussurea alpina. Rocky ravine near the Saddleback.

**Doronicum Pardalianches*. Banks of the Nith, Drumlanrig woods.

Erythræa littoralis. Plentiful on the Solway coast. Near the mouth of the Nith, in salt marshes.

Mimulus luteus. This plant seems to be naturalized in a wood near Tynron, and in a boggy meadow above Drumlanrig it is very plentiful and luxuriant.

**Hieracium rigidum*, *β. pictum*. On rocks above Dalvene pass, on the Lowther hills.

Myosotis repens. This species, which is far from being generally distributed, appears to be not uncommon over the south-east of Dumfriesshire, particularly about Moffat, where it may be seen with *M. cæspitosa* to supply the place of the usually common *M. palustris*.

Anagallis tenella. A rather rare plant in Scotland. I observed it growing with *Statice Limonium* in salt marshes on the Solway coast, near the mouth of the Nith. Is not this a somewhat uncommon situation for this plant?

Atriplex erecta and *A. deltoidea* are common, the former on dung-hills and waste places, and the latter in corn-fields about Thornhill and Drumlanrig.

Rumex alpinus. Several large plants by the road-side near Closeburn mills; and more plentifully by the side of a stream at the Eccles, near Penpont, but I have never met with it in flower.

Salix herbacea. Near and upon the summit of the White Coombe.

Habenaria albida. Heathy pasture near Penpont; Queensberry moors.

———— *chlorantha*. A few solitary plants in Drumlanrig woods.

Arum maculatum. Drumlanrig woods, sparingly.

Potamogeton lanceolatus. Stagnant pools at the foot of the Morton hills, near Locherben; ditch near Anchen Binzie Loch.

———— *gramineus*. Loch by the side of the Edinburgh-road, about five miles from Dumfries.

Juncus maritimus. Plentiful in salt marshes near the mouth of the Nith.

Carex pauciflora. Side of streams on the Lowther hills, near Dalvene pass; a very long and slender state occurs in a boggy meadow above Drumlanrig Castle.

———— *atrata*. Rocky cliffs on the top of a hill near Hartfell.

———— *rigida*. Summit of Hartfell, over a space of more than half a mile.

———— *extensa*. Marsh by the side of the Edinburgh-road, near Darrisdere; and in great plenty above the fall of the Gray Mare's-tail.

———— *capillaris*. Near Hartfell, in company with *C. atrata*.

———— *irrigua*. In a boggy meadow at the foot of the Morton hills, near the ruins of Morton Castle. The Dumfries locality for this plant has, I believe, been lately destroyed by drainage.

Avena strigosa. Corn-fields near Dumfries.

Rottboellia incurvata. Salt marshes on the Solway coast, near Carlawerock Castle.

Ceterach officinarum. On walls about Drumlanrig.

Woodsia ilvensis. This rare and handsome little fern I found in considerable abundance, on very steep, crumbling rocks, amongst the hills dividing the counties of Dumfries and Peebles, in July last; it is growing in dense tufts in the crevices of the rocks, and very luxuriant, many of the fronds measuring nearly six inches in length.

Allosorus crispus. Stony hills about Loch Skew, also very plentiful on the Morton range.

Asplenium viride. Moist rocks at the Gray Mare's-tail.

Hymenophyllum Wilsoni. Moist rocks in several places, as Dalvene Pass; Nithside; side of the Skarr water, near Penpout, &c.

Lycopodium selaginoides. Common on the Lowthers, Morton hills, and Nynron, at the latter place it is accompanied by *L. Selago*, *L. alpinum*, and *L. clavatum*.

WILLIAM STEVENS.

December, 1848.

Inquiry respecting Thalictum Kochii. By the Rev. D. BROUGHTON.

You would confer a favour on remote country simplers like myself if you would insert in your next the character of *Thalictum Kochii* (*Fries*), mentioned by Babington in the last edition of his Manual as possibly growing at Twll dû, in Carnarvonshire.

I gathered a *Thalictum* there in September last, which may possibly be the one he had in view; but being at the time, like Dr. Syntax, merely in search of the picturesque, and unprovided with any apparatus for the importation of specimens, and not being aware at the time of Babington's observation, I crammed the plant which I gathered into my hat, under a kind of impression that it did not exactly resemble any I had seen before; and so when I came to extract it for examination, it no more resembled its ownself than Tibault did after he was mangled.

The inflorescence is remarkably different from that of *Thalictum minus*. I am not acquainted with *Thalictum elatum* (*Jacq.*), but my specimen agrees better with Koch's description of that plant than any other, only I should characterize it as "*Floribus umbellatis verticillatisque*," not *subumbellatis*.

It does not correspond with either tab. 419 or 420 of *Jac. Flor. Aust.*, but is certainly more like the latter, only that the caulis is *sulcatus*.

I should not have troubled you with these observations but that perhaps they may stimulate the curiosity of other and better botanists than I pretend to be, or induce some one out of mere charity to correct the errors of your humble servant.

D. BROUGHTON.

Nantwich, December, 1848.

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P.S.—*Thalictrum Kochii* is not mentioned, as far as I can find, by Koch, De Candolle, Walpers, or Steudel.

[*Thalictrum Kochii* (Fries). "Stem hollow, straight, naked, smooth, striated underneath the rounded and horizontally spreading auricles of the sheaths, petioles angularly ribbed, leaflets roundish 3-5 cleft paler underneath, panicle elongate erect, flowers scattered and with the stamens drooping, carpels from a short and very obtuse base ovate equal 10-ribbed."

The above is the character assigned for *Th. Kochii* in the 'Summa Vegetabilium' of Fries. It will contrast sufficiently well with the character of *Th. minus*, as given in the second (*not* first) edition of Babington's Manual, and may enable Mr. Broughton to decide for himself to which of the two species his specimen from Twll dŷ should be referred. In the absence of any specimen from that elevated locality, the inferences to be drawn from their distribution in Scandinavia, although yet too imperfectly ascertained, would point to some other of the subordinate species which have been included under the vaguely general name of *Th. minus*, as more likely to occur at Twll dŷ.—*H. C. Watson.**]

Notes on a Botanical Excursion in Roxburghshire.

By ARCHIBALD JERDON, Esq.

ON the morning of the 7th July last, I set out to fulfil a long-planned excursion with a friend who resides in the village of Denholm, about halfway between the towns of Jedburgh and Hawick. As I rode, the day, which had been fine in the morning, became dull and misty, but I continued my journey in hopes that it might clear up again. I arrived at my friend's about 11 o'clock, and we immediately started on our expedition.

We first bent our steps to Denholm-dean, an extensive wooded glen near the village, and proceeded up it for about half a mile. Here we met with *Pyrola media*, and saw where *Carduus heterophyllus* had been, for the flowering stems had been cut over, probably by some of the villagers procuring litter for their cow or pig. My friend also pointed out a small patch or two of *Melampyrum sylvaticum*, which I had never seen before, the species commonly found in our

* Obligingly communicated at the request of the Editor.

woods being *M. pratense*. We saw also *Veronica montana* in a damp, moist spot.

On emerging from the Dean we passed through several fields, and then began to ascend Ruberslaw, a conical hill of the trap formation, rocky towards the summit, which attains an elevation of about 1400 feet above the level of the sea. The hill is barren and infertile, stunted heather (*Calluna vulgaris*) forming the chief herbage, and the trees in a belt of plantation which nearly encircles it, at no great distance from the top, are few and deformed. Nevertheless, we found one or two plants worth mentioning. As we ascended, a single plant of *Listera cordata* was gathered on the open hill-side, and *Orchis maculata* and *Gymnadenia conopsea* grew in some abundance in the same situation. In a small hollow Lastræa *Oreopteris* was plentifully mingled with *L. Filix-mas*.

We reached the summit without much difficulty, but rain and wind did not let us long enjoy the beautiful view, which comprehends nearly all Roxburghshire and Berwickshire, and is bounded only by the distant Lammermuirs and Cheviots towards the north and east, and by the hill-country of Roxburgh and Selkirk shires towards the south and west. Among débris of rocks near the summit we found *Allosorus crispus* abundantly, and in crevices of the rocks *Lycopodium selago*, in small quantity.

We descended the hill on the north side somewhat wet and uncomfortable, and no rarities met our eyes, unless a few specimens of *Veronica scutellata* in a marshy spot can be considered as such.

After refreshing ourselves at my friend's house in the village, we again sallied forth to explore Minto Crag, an abrupt eminence clothed with wood on the opposite side of the river Teviot. Crossing this river by a suspension bridge close to the village, we walked along its banks for some distance. Here my friend pointed out a large patch of *Euphorbia Esula*, growing in a bushy spot in the heugh or level waste ground which borders the river's "wild and willowed shore." At this juncture rain again prevailed much to our discomfort, but we trudged on determined to accomplish our purpose. There are walks formed on the side of the Crag, at various heights, besides a carriage drive at the foot, and we gradually wound our way to the summit, where are the ruins of a small tower or border-keep.

In our way up we found, growing on the rocks, *Lychnis viscaria*, which had nearly done flowering, *Sedum reflexum*, not yet in flower, and *Geranium lucidum*. Near the top *Sedum acre* was plentiful, and the great rarity of the place, *Asplenium septentrionale*, filled the cre-

vices of the rocks in some abundance. In the old castle *Asplenium Adiantum-nigrum* hung gracefully here and there from the corners of the walls.

Minto Crags are also of the trap formation, but the rock is harder and denser than that of Ruberslaw. They form a very picturesque object, the base being strewn with large masses of rock, of every shape and form, and the grey face of the precipitous parts contrasting well with the green foliage of the trees, which clothe the crags from head to foot.

The day wearing on, we returned to Denholm, after visiting the beautiful flower-garden at Minto House, and I wended my way homewards much pleased with my excursion.

ARCHIBALD JERDON.

Mossburnford, near Jedburgh,
November 29, 1848.

BOTANICAL SOCIETY OF LONDON.

Wednesday, November 29, 1848.—Twelfth Anniversary Meeting. John Edward Gray, Esq., F.R.S., President, in the chair.

Donations of British plants were announced from Mr. Thomas Bodenham, Mr. J. D. Salmon, Mr. J. Tatham, junr., Mr. T. Sansom, Miss M. Beevor, the Rev. W. W. Newbould, Dr. Wood, Mr. F. Brent, and Mrs. Atkins.

Foreign plants had been received from Mr. Anderson.

The Secretary read the annual Report of the Council, from which it appeared that 23 new members had been elected since the last Anniversary. The distribution of specimens to the members had given the greatest satisfaction, and many valuable specimens had been received from members, and other botanists, for distribution during the ensuing season. The Report was unanimously adopted; after which a ballot took place for the Council for the ensuing year, when the Chairman was re-elected President, and he nominated John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., Vice-Presidents. Dr. Cooke and J. W. Rogers, Esq., were elected new members of the Council, in the room of John Coppin, Esq., M.A., and Dr. Parkin, who retire in rotation. Mr. J. Reynolds and Mr. G. E. Dennes were respectively re-elected Treasurer and Secretary. Mr. Thomas Moore was elected Librarian.—*G. E. D.*

Note on Rubus nitidus of the 'Rubi Germanici,' and on some Specimens so named in the Smithian Herbarium. By EDWIN LEES, Esq., F.L.S.

IN my last communication there are two errors (one at least attachable to the compositor), which it will be best to correct forthwith, especially as I thus unintentionally, as the context shows, misrepresent my accurately-observant friend the Rev. Andrew Bloxam. It is stated at p. 363 that Mr. Bloxam had informed me that Mr. Babington's plicatus was identical with my leucostachys, the fact being, as shown by the very title of the paper, that it was Mr. Babington's nitidus to which Mr. Bloxam's information had reference. The other misprint, at p. 360, is "caule folii feré glabro," as if Weihe & Nees had stated the stem of nitidus to be *almost* smooth instead of quite so, without any qualification, the words being, "caule foliifero glabro,"—the *leafy* or barren stem entirely smooth.

Being thus obliged to take up my pen, it may not be amiss to improve the opportunity by a few remarks on the specimens named nitidus in the Smithian herbarium, which will be a supplementary aid to my former observations, and at all events show what Sir J. E. Smith truly meant by his designations *R. nitidus* and *R. affinis* in the 'English Flora.' When an eminent botanist, like Mr. Woods, says in a former number of the 'Phytologist,' that he never ventures to offer an opinion on a bramble, one ought, perhaps, to feel a little diffidence when pronouncing a decision on dried specimens of *Rubi*; but an experience of more than a dozen years among thorny thickets enables me to recognize the physiognomy of my old lacerators, and so fearlessly (if I may be pardoned the vulgarism) come up to *the scratch*. I have been often asked what there could be worthy of attention in a common blackberry or thorny briar? But I can truly say in reply, that from the stony woods of the Cotswolds, where the ruby fruit of *R. saxatilis* adorns the broken oolite, to the deep glens of Devon, where the roaring Lyn is shaded by almost ever-verdant, drooping shrubs of *R. suberectus*; nay, on to the sandy dunes of the shores of North Wales, where the dewberry spreads its bloomy drupes among a matted mass of creeping stems; or with flowering raspberry bushes in the odorous and balmy woods of May; to say little of the sable clusters beautifying the hedges of autumn on woodland height or in sequestered dingle; I have found abundant food for enjoyment, reflection and observation. It is true that I have occasionally re-

ceived an unkind cut or rough detainer from a surly, straggling bramble on whose toe I have trodden, but there is a moral lurking even here; for friends are occasionally snappish as briars, and it saves further laceration to *unhook quietly*! But to come out of this thicket of digression, and return to the Rubi in the Linn. Soc. Museum.

There are several specimens in the Smithian herbarium named *R. nitidus*, which I shall remark upon in order, but Smith himself in the 'English Flora' refers only to *three*, upon which he founds his description; one from Snelsmore Common, near Newbury, Berks, sent by Mr. Bicheno; another from St. Leonard's Forest, Sussex, from Mr. Borrer; and a third from Shropshire, communicated by the Rev. E. Williams. One error of necessity begets another, and Sir J. E. Smith, as I have shown in my last paper on *R. leucostachys*, having mistaken *R. plicatus* of W. & N. (misled, probably, by the deceptive name), certainly includes under his *nitidus* decided specimens of *R. plicatus*, Rub. Germ. Thus Williams's specimen, ticketed "No. 7, from Shropshire," is the plant now described as *plicatus* by Mr. Babington, and no doubt belonging to that species. The brambles from Snelsmore and St. Leonard's Forest seem to be not precisely the same as the Shropshire plant, but rather small specimens of *suberectus*, though really not very far removed from the described *nitidus* of Esenbeck. Mr. Bicheno had provisionally named them *ericetorum*, which name still remains in some collections, but Welsh specimens of *suberectus* are almost exactly similar.

What appears to me to be the true *R. nitidus* of Rub. Germ., with *bright red flowers*, and quite agreeing in its smooth stem and suberect habit with the German plant, I have found in Devonshire, and if I am correct in this, the German *nitidus* is, as Esenbeck declares it, a variety of *R. plicatus*. In fact, after much thought and incessant examination, I incline to agree with the late Mr. Bicheno,* whose judgment was pretty clear on the subject, that *R. suberectus*, *fissus*, *plicatus*, *fastigiatus* and *nitidus* (W. & N.), are really only forms of one variable, but decidedly *suberect* and *non-rooting* species. The specimens, then, named by Smith *nitidus*, are referrible to *plicatus* and *suberectus*, and it is only these that Professor Lindley could have had in view in the first edition of his Synopsis, where he describes *R. nitidus* on the "authority of Smith's English Flora." Yet in the second edition, probably from a reconsideration of the specimens, he refers Smith's *nitidus* to *affinis*, which, though wrong as to the name,

* See a letter from that botanist to Sir J. E. Smith, preserved with the Rubi in the Smithian herbarium.

is *partially* right, as he considers Smith's plants to be identical with Mr. Borrer's *R. plicatus*, E. B. Supp. 2714, which he also refers to *affinis*. I can see no reason for believing, with Dr. Bell Salter (Phytol. ii. 101), that Smith drew up his description of *nitidus* from "another species, *R. cordifolius*," as he calls it "a *slender* straggling plant," which can scarcely be said of well-grown plants of *cordifolius*, and he refers, besides, distinctly to Williams's specimen, which is indubitably *R. plicatus*.

I shall now glance for a moment at the *R. affinis* of Smith's 'English Flora,' and the specimens he refers to in confirmation of it. Mr. E. Forster is the authority for the specimens: one from "a lane at Hatfield, Sussex," and "also in Epping Forest." The identical specimen from Hatfield still exists in the Smithian herbarium, but strange to say, I find it to be a variety of Lindley's *leucostachys*, with a *hairy* barren stem, and therefore not essentially different from Smith's *plicatus* (not of W. & N.), for which I have proposed the name of *Lindleianus*. Indeed, part of Smith's description would suit very well for the latter, where he mentions its "densely downy panicle," and "panicle more or less compound and corymbose, apparently somewhat *glutinous*, but not evidently glandular, nor at all bristly." Smith, however, seems to have been dubious as to this bramble; for under Mr. Forster's name "*R. affinis*?" is written "I think so, J. E. S.," and in the 'English Flora' he observes that "the species requires further investigation." It is remarkable that the specimen from Epping Forest, which also seems to be a small form of *Lindleianus*, was sent by Mr. Forster ticketed "*nitidus*," but Sir J. E. Smith writes beneath, "rather *affinis*, J. E. S.," so that the *affinis* of 'English Flora' is but the *leucostachys* of Lindley, and essentially the same as Smith's *plicatus*, which I have shown to be *not* the *plicatus* of the 'Rubi Germanici.' There is still another specimen marked "*nitidus*" by its collector, in the Smithian herbarium, and noted as sent from Esher, Surrey, by "E. F." I presume Edward Forster, Esq., now one of the Vice-Presidents of the Linn. Soc., and this is certainly the *leucostachys* of Lindley, Leighton and myself, which we all erred in so naming, while Smith and Bicheno were also incorrect in referring it to *plicatus* and *affinis*. Indeed, to this last-mentioned specimen Smith has very dubiously assigned the name "*affinis* ??—J. E. S." The same spell of misapprehension appears to have infected every botanist touching upon this unfortunate bramble; for Mr. Borrer, in the third edition of Hooker's "British Flora," actually refers the *R. affinis* of Smith's 'English Flora,' described from

the specimens above mentioned, to *R. Köhleri*, *γ. pallidus*, a very glandulose bramble, although it is expressly stated by Smith that the panicle is not at all bristly or setose, and the specimens preserved distinctly negative its belonging to the glandular group.

The true *affinis* of Weihe & Nees in '*Rubi Germanici*,' has been but recently brought before the notice of British botanists; for mistaken by Smith and Lindley, and undescribed by Mr. Borrer, the *name only* occurs in Mr. Babington's Synopsis as a synonym of *corylifolius*, the latter, or rather my *sublustris*, having been mistaken for it, so that this bramble is absent altogether from Mr. Babington's Manual. I have brought it forward in my arrangement of the *Rubi* in Dr. Steele's '*Hand-book of Field Botany*,' and it is satisfactory to observe that Mr. Babington here coincides with me, having in the Supplement to his Synopsis, No. II., identified the plant there mentioned with specimens gathered in Cowleigh Park, Malvern, where I pointed it out to my indefatigable botanical friend the Rev. Andrew Bloxam. I have since more fully studied this bramble, and agree that its correct position is in the suberect section, as stated by Mr. Babington in his Supplement. In fact, I have observed the very smooth barren stems rising erect ten or twelve feet in the air before bending, nor have I been able to detect any of them taking root. Luxuriant specimens have the panicle very broad and compound, hairy, with numerous, spreading, corymbose branches foliaceous almost to the summit. It appears to require moist ground to grow to full perfection, and I observed it this year growing very high and beautiful in damp thickets below Moorall's Well, Colwall, Herefordshire, where it produces fine fruit, not the case in dry situations, which shows an affinity to the habit of *R. suberectus*. To the localities Mr. Babington has mentioned I can add Horsenton Wood, Middlesex, and Ecclesbourne Glen, near Hastings, Sussex. That *R. affinis* may be closely related to *nitidus* of Rub. Germ. is highly probable, but it is altogether different in appearance and habit from the bramble I have designated as *Lindleianus*, nor when once known can they be confounded or mistaken. *R. affinis* is a lofty, aspiring shrub, emulating its suberect congeners, but the other, it must be truly stated, is really a prickly, grovelling plebeian, like others of the same family, though as distinct in itself, deserving a place on the roll.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
December 4, 1848.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 383).

Eryngium maritimum. Sea-coast in several places. On Ryde Dover very sparingly, if not now quite extinct, through building. Abundant on the sandy spit at Norton by Yarmouth, and at St. Helen's. West side of the mouth of the Newtown River, plentifully. Shore near E. Cowes; Mr. W. D. Snooke. Common along the south beach of Hayling Island. A variety with the stem leaves and flowers rose-coloured grows at St. Helen's, Isle of Wight.

Hydrocotyle vulgaris. Very common in low, boggy meadows and damp pastures in the island and county.

Apium graveolens. Ditches and marshy places, chiefly on or near the coast, and where the water is brackish. Plentiful in many parts of the Isle of Wight, as on Ryde Dover, at Binsted, Yarmouth, Freshwater, &c. Common in ditches of fresh water about Brixton or Brightstone, Isle of Wight. Frequent on the mainland of Hants, along the coast. Abundant at Emsworth and betwixt that and Havant in various places. Hayling Island, Lymington, &c.

† *Petroselinum sativum.* Naturalized on old walls, banks and waste ground here and there in the island and on the main. I observed it abundantly on the shingly beach at Hurst Castle, in 1838, where it was being gathered for domestic purposes. Walls of Carisbrook Castle; Mr. W. W. Saunders!!! On the stone facing of the bank below the church at Newchurch, Isle of Wight; Dr. T. Bell Salter!!! In Luccomb Chine; Miss G. E. Kilderbee!!! I find it in other places in this island, perfectly and permanently established, but always near houses or buildings of some kind.

— *segetum.* Very frequent, but rather uncertain in its times and places of appearing, on hedge-banks, in waste ground and cultivated fields over the greater part of the Isle of Wight, more especially on stiff clay soils. Common about Ryde, and abundant this year (1848) on earthen fence-banks along the new line of road from the Dover to St. John's, and on the hedge-bank facing the Infirmary. About Southampton, in Hayling Island, and probably not rare in mainland Hants. Maple Durham; Goodyer in Gerarde. In its singularly lax, wiry, nearly leafless habit, and imperfect, or rather irre-

gular umbels, this species has little affinity with the preceding, and more resembles some *Bupleurums*. Its depressed, radiating tufts of dark green, shining, root-leaves are common and conspicuous in our turnip-fields and fallows during winter; and in October last I noticed a large field near St. Helen's church, literally covered in parts with the radical leaves of this species, which was more than usually plentiful over the island generally during the past season. The fruit possesses considerable aroma. This species seems to be wanting over the greater part of Europe, and to be confined principally to the Atlantic coasts, abounding in the west of France, but unknown in Italy, Austria, and all the eastern countries.

Helosciadium nodiflorum. Profusely throughout the county and island, in ditches and shallow streams. A great nuisance in our marshy levels, its rank and rapid growth requiring constant exertion to keep the ditches clear of its long, procumbent, entangled stems, that are often as thick as the wrist, and in one summer will suffice to choke the drains, filling them so completely as to hide the water from sight. In a series of experiments I am making on the heat of springs, with a view of determining the mean temperature of this island, I have been compelled to abandon one of the most copious and uniform from the impossibility of gaining access to the source during at least half of the year, so completely is it concealed under an impervious covering of this encroaching umbellate. I have not yet seen ripe fruit of this species. The var. β . (*H. repens*, *Koch*) is not very unfrequent on the margins of ponds, ditches and on wet commons in the island and county. This, like the last, is principally restricted to the Atlantic parts of Europe, but advances a little farther eastward into western Germany and Switzerland.

———— *inundatum*. In several pools in the Isle of Wight, but by no means frequent. In partially dried-up pools above the shore betwixt Yarmouth and Hampstead. Abundant in a pond (now, I fear, quite drained) at the foot of Bleak Down, at the junction of the roads to Newport, Chale and Niton. Abundant in the shallows of the great pond on Petersfield Heath. In the first of these stations I found a form of *Myriophyllum alterniflorum* in considerable abundance some years ago, which I forgot to notice under its proper head in these Notes. In this variety the segments of the leaves were linear, not capillary, and the bracts under the staminate flowers linear-lanceolate and quite entire. This agrees in the main with the figure and description of Morison, as quoted in Smith's 'English Flora,' iv. p. 148, under *M. spicatum*, except that in Morison's plate the stem-

leaves are drawn of the usual tenuity, and the bracts obovate. That figure, if correct, represents *M. alterniflorum*, which, though accurately distinguished by Petiver, was lost sight of as a species by succeeding English botanists, and confounded with the very distinct *M. spicatum*.

Sison Amomum. Still more frequent than *Petroselinum segetum* (formerly referred to this genus), even to profusion, on banks, along hedges, road-sides, and borders of fields, but though often associated with that species, seldom straying with it into cultivated ground. Plentiful on hedge-banks in most of the suburban streets and outskirts of Ryde. Abundant about Yarmouth, and in various other parts of the Isle of Wight, as well as on the mainland of Hants. Nore Hill and Temple, near Selborne; Professor Bell! About Southampton, West Meon, in Hayling Island, &c. Called spikenard by the country people of Hants; Miss L. Sibley.

†? *Ægopodium Podagraria*. Scarcely to be called rare, but not very common, at least in the Isle of Wight, on damp hedge-banks and in orchards; seldom found remote from habitations, and yet I cannot but think it truly indigenous, from its universality in the country, its power of occupancy, and its analogy to certain other plants that, like the dog amongst animals, follow the footsteps and affect the haunts of man in all climates alike in which they are found, and flourish in places not more sequestered than these. Widely dispersed over the county, I find it at Andover, Winton, Selborne, Oak-hanger, Bordon, and other places. Less plentiful, I think, with us than in the north of England and Lowlands of Scotland, nor does it here perfect its fruit freely.

Bunium flexuosum. Abundant in meadows, pastures, and copses all over the county and Isle of Wight. *B. Bulbocastanum* may possibly occur on the chalk, in the north-eastern part of the county.

Pimpinella Saxifraga. Abundant in its several forms with the last, and equally universal. *P. magna* may reasonably be looked for it the county in woods and thickets.

Sium latifolium. Ditches and ponds; rare? Near Fording-bridge; Dr. Maton in Bot. Guide. In the Stour, at Heron Court, near Christchurch, Mr. Curtis in litt. (Icon. in Brit. Entom. ex loco). Unknown in the Isle of Wight, but probably not very unfrequent in the county, though I have as yet only the above two stations to record for it.

—— *angustifolium*. Ditches and ponds; rare? Certainly very scarce in the Isle of Wight. In ditches on Easton Marsh Freshwa-

ter Gate, also in a pool on the dislocated land betwixt St. Catherine's Point and Black-gang, in plenty, [and in the *Cyperus* meadow at Old Castle Point. A plant or two has been found at Ventnor, and betwixt St. Lawrence and Old Park. I have no mainland stations to assign for this species as yet, but judge it not likely to be uncommon in the county.

Bupleurum tenuissimum. No unfrequent plant in salt-marsh ground along the coast. In several parts of the Isle of Wight, but not common. Near Ryde, Brading, Cowes, Yarmouth and Newtown. Wier Hard, near Fareham; Mr. W. L. Notcutt. Abundant and very fine on sea-banks in Hayling Island.

————— *rotundifolium.* In corn-fields and their borders on the chalk; possibly not rare in the county generally. Extremely local in the Isle of Wight, but plentiful in the chalky corn-fields south-east of Yarmouth, near Thorley, Wellow and Calbourn, over a district of some extent. I had never seen it in any intermediate station till I found it July 7th, 1848, at the opposite extremity of the island, in a wheat-field, at a height of several (about five) hundred feet above the easternmost end of Sandown Bay, in some plenty. Mud Farm, near Avington; Dr. D. A. White. Corn-fields at Tichbourne and Owslebury; Mr. Wm. Pamplin in New Bot. Guide. The Euphorbia-like habit and unilateral mode of branching are very characteristic of this handsome umbellate.

Oenanthe fistulosa. In wet meadows, ditches and pools. Decidedly rare in the Isle of Wight, though tolerably plentiful in a few localities. At Easton Marsh Freshwater Gate, but rather sparingly. In several parts of Sandown Level, in the ditch at the fort, &c., more abundantly. Drains on the north side of Lake Common. Probably not rare on the mainland. I have received it from Mr. Whale, of Andover, but without locality, and believe I have seen and gathered it at Bishop's Waltham, and in the low grounds about Winchester, but find no memorandum respecting it amongst my notes. In a watery meadow near to Hook, by Hursley, not plentiful; Mr. William Whale!

————— *pimpinelloides.* In meadows, pastures, on heaths and by road-sides, one of the commonest of our Umbelliferae over the entire Isle of Wight, but not equally abundant every year, being in some seasons even scarce, in others profuse, though in most, plentiful. With us it is not restricted to any particular soil, though evincing, perhaps, a preference rather for clay than chalk; nor is it more partial to dry than to damp situations, as I have seen low-lying hay-

fields quite white with it. It is likewise found with the following species (*Æ. Lachenalii*) in salt-marsh or brackish lands, as well as remote from salt water, and may sometimes be seen growing plentifully amongst wheat. I know but little of its distribution in mainland Hants, but suspect it to be rare at any distance from the coast, not recollecting to have once met with it in the interior of the county, or finding any memorandum to that effect. Plentiful in the borders of fields about Lymington, July, 1848. The periodical decrease or partial disappearance of the plant is remarkable in a perennial species, as this certainly seems to be in a garden. The round or oval knobs or tubers on the root are farinaceous, sweet and well-tasted, greatly superior to those of earth or pig-nuts (*Bunium flexuosum*), as being wholly devoid of acrimony, and might possibly be cultivated to advantage, as those of *Bunium Bulbocastanum* are said to be in Italy and Norway.

Ænanthe Lachenalii. In very wet salt-marsh land, also in damp pastures and heathy ground adjacent to the shore, and consequently where the soil is more or less saline, but far less frequent than the last, and invariably, I think, in the vicinity of salt water. Shores of the Wootton River, and along the Yar betwixt Yarmouth and Freshwater, in considerable plenty, in the latter station growing amongst the furze, on that part of Welmingham Heath contiguous to the river, and where the soil is comparatively dry. All over the marsh meadows at Easton Freshwater Gate. Salt-marsh pasture on the east side of Hayling Island. A most distinct and well-marked species from the last.

Of *Ænanthe peucedanifolia* I know nothing, except from description, the figures of Pollich and of 'English Botany,' and from an indifferent dried specimen. I think it highly probable it will be found to inhabit this county or island, and I have lately entertained a strong suspicion that some of my stations for *Æ. Lachenalii* given above, where the plant grows on the drier soils, may really belong to *Æ. peucedanifolia*. Does this latter never grow in or near salt water? I have a specimen of a plant gathered by myself at Bulverhithe, in Sussex, in 1834, which looks like *Æ. peucedanifolia*, but wants the characteristic tubers at the root, and has a many-leaved general involucre, but this last seems liable to considerable variation, being sometimes present and at other times wholly absent. From the description of Lloyd, in that excellent little work, the 'Flore de la Loire Inférieure' and whose account of these *Ænanthes* is admirable, the fruit of *Æ. Lachenalii* and *Æ. peucedanifolia* do not differ

much, for he says, "Fruit oblong cylindrique (*oblong* simply in *Œ. Lachenalii*) rétréci à la base, reserré sous le calice." Are the two species really distinct?

Œnanthe crocata. An extremely abundant and universal species in wet, boggy places, ditches, drains and sides of brooks throughout the Isle of Wight, and, as far as I have observed, the county generally. In the black, rotten soil of the deep, boggy thickets that occupy the hollows at the foot of the chalk downs, this rank and poisonous umbellate chokes the ground with a forest of tall but succulent and yielding stems, that emit a virose odour as they are successively broken down in forcing a passage through them. The plant is known in this island by the name of belder-root, and it is alleged, frequently proves fatal to swine that turn up and devour the large, fleshy tubers of which the roots consist. The existence of a yellow juice in this species, which gave rise to the specific name, has been a subject of controversy. Dr. Salter finds it in the plant of the neighbourhood of Poole (*Phytol.* ii. 116), and also, though of a paler colour, in others from Bembridge, in this island. I have never myself remarked such coloured juice to flow from fracture or incision here, but have now and then found minute masses of a saffron or orange yellow matter within the hollow of the stems, which had the appearance of an inspissated exudation of the proper latex.

———— *Phellandrium*. A common species apparently in mainland Hants, and thought to have been seen by the Rev. G. E. Smith and Mr. Curtis (*Brit. Entom.* xi. fol. 506), at the back of the Isle of Wight. I have never detected it here myself, where so many of our British aquatics are wanting or exceedingly rare, from the limited amount of water surface the island affords, and the insularity of position acting as a check to their dispersion over it from other parts. As neither of my informants seems certain on the point, I may fairly assume them to have been in error, because I am ignorant of any spot likely, or indeed capable, of producing a plant requiring the depth of water which this does, near the place specified, though in the marsh ditches at Freshwater and Sandown the total absence of this *Œnanthe* may justly excite surprise, considering how plentiful it is immediately on crossing the Solent. Abundant in ditches at Gomer Pond, Gosport. Plentiful with the following (*Œ. fluviatilis*) in clear streams around Wincher, Gill Copse, Titchfield River, the Salterns (near Fareham); Mr. W. L. Notcutt (*Phytol.* ii. 206). By the old canal at Millbrook (Southton), *Id.* in litt.

———— *fluviatilis*. In rivers and streams. Abundant in the

river Itchen, at Winchester; Mr. Babington!!! Christchurch; Mr. Borrer. I find it plentifully with the last in clear streams around the city, as in Winnalwater meadows, and growing in such quantity as to prove a great nuisance to the mills built over their swift and sparkling torrents. In the autumn, when the old stems decay and part from the ground, they accumulate by degrees, and form floating islands of great thickness and extent, blocking up the channel and floodgates, and unless prevented, clogging the mill-wheels. Such an island, of, I should say, forty or fifty yards in length and ten or twelve in breadth, I saw last summer floated away through the side sluice for the escape of the water when the mill is standing, at one of the principal flour-mills of the city, and the length of time consumed as the vast mass of entanglement sluggishly glided out of sight beneath the archway, though urged forward by poles, plainly showed the great weight of matter collected and its power in obstructing the stream. I have not yet had an opportunity of carefully examining this recent addition of the Rev. W. H. Coleman's to the British Flora.

Æthusa Cynapium. Frequent, and occasionally abundant in the county and Isle of Wight, in weedy gardens, corn-fields and waste ground. In 1838 I observed an extensive wheat-field at Beanacre in this island, quite overrun with it.

†? *Fœniculum officinale*. On waste ground, banks and cliffs along the coast; apparently rare in Hampshire, nor am I quite satisfied that it is truly indigenous to the county, though clearly so on many parts of the southern and eastern shores of England.* Very abundantly, and perhaps truly wild, on extremely steep banks facing the sea at the east side of Ventnor Cove, Isle of Wight, where it has existed to my knowledge long anterior to the buildings that now fill the cove. On a bank betwixt Luccombe and Shanklin in plenty, but in a spot not quite beyond suspicion. Occasionally about the borders of fields in several parts of the island, but mostly in single clumps, and in places unlike its truly natural stations. Plentiful on the south beach, Hayling Island, but only near the buildings and an abandoned garden, though it is *possible* it may not have had anything to do with one or the other, since the locality is just such as this species usually selects. The state of the pith in this plant affords no constant character; it is usually, I find, perforated in the centre with

* Certainly native: for instance, in Pegwell Bay, near Ramsgate, at Paignton, near Torquay, and various other places.

inches wide, that are usually almost perfectly hemispherical in flower, but sometimes flat or slightly depressed, never, I think, so much cupped as in the common state of the species, and less deeply concave in fruit, with or without a coloured, abortive flower in the centre, the unexpanded flowers mostly rose-red, but becoming subsequently white. Fruit differing in no respect, so far as I can find on careful examination, from the common inland state of *D. Carota*; it is not therefore likely to be the *D. maritimus* of Withering, which last is not Lamarck's species of that name (see De Cand. Prod. iv. p. 211); whilst ours is probably identical with the plant alluded to in the Manual (p. 144), as apparently the *D. gingidium* of Linnæus, though it does not quite answer De Candolle's description of this latter. It agrees well with the descriptions, and very fairly with the figure, of *D. hispidus*, Desf. (Fl. Atlantica, i. p. 243, t. 63), which De Candolle says grows on sea-cliffs at Dieppe and Treport, except that the leaflets in our plant are more deeply incised, but this character I find variable. Should it be identical with *D. hispidus*, still I cannot regard it as anything but a form of *D. Carota*, rendered as it were more obese by the proximity of the sea, though the same effect is not always produced on the species by the maritime atmosphere, and the variety is found about the borders of the corn-fields 500 feet or more above the beach, and some distance back from the shore. De Candolle remarks of the genus *Daucus*, "*Species extricatu difficillimæ*," and the species-makers seem to have vied with the gardeners in getting the most they could out of the wild carrot. The Rev. G. E. Smith tells me he has traced our plant through every intermediate gradation from the ordinary *D. Carota* in this island, and my own observation goes far to confirm the same.

Caucalis latifolia. In corn-fields; very rare. About Crooks (or Crux) Easton, Hudson. Of this plant, which rests solely on Hudson's authority, I have seen no specimens. It is, however, a very likely species to occur in Hampshire. *C. daucoides* is still more likely to reward a search in the corn-fields of this county.

Torilis Anthriscus. In waste places, along hedges, borders of fields and woods; extremely common over the island and county. Though so much larger a plant, the fruit is considerably smaller than in the next species, and as Curtis has remarked (Fl. Lond.), is more aromatic. The secondary ridges are beset with only a double row of ascending, scabrous prickles, that are shorter and more distant than in *T. infesta*, and terminate in simple, straight, or erect, not spreading or deflexed points, as in that, the interposed rows of white,

appressed spinules, too, are quite wanting to this species. Stem rough throughout. Outer rays of the umbellets* longer than the ripe fruit.

Torilis infesta. An abundant and troublesome weed, as its specific name implies, in most parts of the county and Isle of Wight, in waste and cultivated land, by way-sides, and especially in cornfields, which are too often seen filled with it, to the discredit of the careless and slovenly farmer. Most prevalent on clay, and hence much too plentiful on our stiff wheat lands about Ryde and the entire north side of the island, where the eocene are the prevailing deposits. Stem smooth and polished below; outer rays of the umbellets shorter than the mature fruit.

—— *nodosa.* In dry, waste places, on banks, under walls, by way-sides, borders of fields, and amongst corn, by no means uncommon in the county and island, especially on chalk or gravel. Abundant on banks and earthen fences at Bonchurch, Ventnor, and in corn-fields at St. Lawrence. Extremely common in Freshwater parish, about Yarmouth, also about Ryde, Cowes, and in most parts of the island pretty frequent. At Andover, Lymington, Clanfield and elsewhere on the mainland, generally dispersed. The variety with the interior fruit of the umbel wholly granulato-tuberculate is the only form I have met with in Hampshire hitherto. It is said, however, to occur with all the fruit prickly; here it is only the outer hemicarps of the exterior fruit which are spiny, the inner hemicarps resembling those of the interior of the umbel in being simply tuberculated.

Scandix Pecten-veneris. An abundant weed everywhere throughout the county and Isle of Wight, in cultivated land, on fences and hedge-banks, &c. The "crow needles" of our rustics and shepherd boys.

Anthriscus sylvestris. In moist shady places, meadows, orchards, groves, hedges, &c., everywhere most abundantly.

†—— *Cerfolium.* A specimen of this, the garden chervil, is in the herbarium of the late Mrs. Robinson, of Fareham, gathered near that place. I once found it under the wall of a garden at Ryde, from which I ascertained it to have escaped, and it has since disappeared. I have collected it in a pretty well naturalized state at Farn-

* I here adopt the term *umbellets* from my excellent friend Dr. Darlington, of West Chester, Pennsylvania, in preference to *umbellules*, as being more congenial in the termination to the structure of the English language, and much superior to *partial umbels* in neatness, brevity and precision.

ham, in Surrey, but have never seen it, except in the above instances, from this county. Mrs. R's station, shown to me by her servant, who always accompanied her mistress when herborizing, was a hedge-bank in a field far from house or garden, and if there was no mistake, the locality might pass for an excellent one, but when I saw it, it was late in the year, and the plant had vanished for the season. Its true country seems to be the south-east of Europe, in Austria, Hungary, &c.

Anthriscus vulgaris. On hedge-banks and fences, in waste places, under walls, and in dry, sandy ground, particularly near the sea and about towns, but far from common in the Isle of Wight or county generally. On Ryde Dover, but sparingly, and likely to be soon wholly extirpated, also betwixt Ryde and Springfield in very small quantity. Profusely abundant on banks and fences betwixt Bonchurch and Ventnor, along the line of the old road, 1846—1848. Abundant at Sandy Bank and Sandy Way, just out of Shorwell, 1846. I have also found it at a great elevation on High Down, by Freshwater, and on lofty cliffs betwixt Whitwell and Niton. Plentiful on earthen fences at Clay Hall, between Gosport and Alverstoke by Haslar.

Cherophyllum temulentum. An abundant species in woods, hedges, and waste places in most parts of the Isle of Wight and county.

Conium maculatum. A widely diffused, yet rather local species, both in the county and island, in moist woods, pastures and waste ground. Scarcely to be found within some miles of Ryde: a few plants amongst the ruins of Quarr Abbey. Abundant here and there about Brading, Yaverland, Luccomb, Bonchurch and along the Undercliff. Plentiful just out of Yarmouth, towards Thorley, and in various other places. Profusely in that garden of Hecate, Longwood Warren, near Winchester. A favourite station of this plant with us is along the top of the earthen fences which run across the downs, on which it flourishes prodigiously.

Smyrniolum Olusatrum. In waste ground, amongst ruins, and on hedge-banks, also (and truly wild) on sea-cliffs, damp pastures and in shady lanes, in innumerable places in the Isle of Wight. Profusely along the crest of the shore betwixt Ventnor and Steephill, and in several places along the coast betwixt Bembridge and the Culver Cliff. Lanes near Foreland Farm. Plentiful in the area of Carisbrook Castle, and in a vast number of places over the island, in hedges, lanes and pastures, both inland and along the coast; in many of them probably the plant was formerly cultivated, but in others it oc-

curs as truly indigenous in my opinion as the celery (*Apium graveolens*) to which it has long since given place at the table. I am not prepared to state its distribution on mainland Hants. Mr. Notcutt and myself find it at Porchester Castle, a suspicious station, but it will probably be found in less exceptionable localities along the coast, remote from which I have never seen it assume an undeniably wild position.

Alexanders was formerly much esteemed for the table, boiled, and eaten like greens, even in the time of Dioscorides. Gerarde says, "the roote hereof is in our age served to the table raw for a sallade herbe." It is not a little singular that this plant has long survived all record of its use in the Isle of Wight, its very name has been quite forgotten; and by a strange confusion of ideas, it shares with the genuine *Apium graveolens* the "appellation of wild celery, and by that only is it known. This is the more remarkable, as both species are common natives of the island, and the latter of course in cultivation in every garden, whilst the former is constantly obtruding itself on observation in hedges and pastures about places where there is every reason to believe it must at one time have been itself a well-known and esteemed garden esculent.

N. B. — *Echinophora spinosa* has been indicated to me in a list of plants growing near Yarmouth, in this island. There can be little doubt but that an error was committed in this instance, notwithstanding there is every reason for believing the species to have formerly inhabited several parts of our coast, even to within a late period, as the authority for its occurrence is respectable, and not that of a single observer merely. Though quite a southern plant, its range may extend, like that of many other maritime species, considerably to the north of its ordinary limits, where circumstances are favourable to its propagation.

Adoxa Moschatellina. In moist, shady places, woods, groves, on hedge-banks and about the roots of trees; very frequent in the Isle of Wight, and as far as my observation extends, over the entire county. Common about Ryde, at St. John's, &c., where I gathered it in fine fruit, which I believe is not very usually perfected. The herbage of *Adoxa* has a perceptible musky scent in moist weather, or when wetted by dew or rain; that of the flower is less transient, more penetrating, with some pungency, and to myself recalls the idea of dilute nitric or hydrochloric acid, or the smell given out by slightly heated steel, as when a razor is dipped into warm water. Sir James Smith, who appears never to have seen the fruit of *Adoxa*, describes

it with Gärtner, whose figures are but indifferent, as one-celled. Other authors justly consider it as four-celled, the four angles of the placenta being very evidently prolonged into complete, though very narrow dissepiments. The square mass occupying the centre, and to the top of which the seeds are attached, is quite distinct from their pulpy envelope, and as much entitled to be called a placenta as in any dry or capsular fruit whatever. This curious plant is perhaps as nearly allied to Saxifragaceæ and Caprifoliaceæ as to the present order (Araliaceæ). Its relation to Chrysosplenium is obvious.

Hedera Helix. On old walls, rocks, trees and hedges, most abundantly. In no part of Britain, or elsewhere perhaps, is the ivy to be seen in greater profusion and luxuriance than in this island, and could the amount of surface covered by it be determined, it would probably be found to exceed that occupied by any other native plant, the common meadow grasses not excepted. The glory of the Undercliff, whose crags and rocky boundary walls are mantled with its garniture of green in lavish exuberance, contributing, with Scolopendrium vulgare, Iris foetidissima and Rubia peregrina, to the perennial verdure of that vast and romantic terrace.

Cornus sanguinea. Woods, thickets and hedges, all over the county and island in great abundance, constituting a considerable percentage of the ligneous vegetation, flourishing in nearly every soil and situation alike. Usually with us a slender shrub, but sometimes a small tree, twelve or fifteen feet high, with a single trunk of several inches diameter.

Viscum album. Not rare, I believe, on mainland Hants, though I have but few actual stations to record for a plant so generally frequent in the south-east of England as not usually to attract attention to its special places of growth. Hants; Mr. Wm. Pamplin in 'New Botanist's Guide.' Cams Park, and at Southwick, near Fareham; at the latter place plentifully; Mr. W. L. Notcutt. Hurstbourne Park, the seat of Lord Portsmouth, near Whitchurch, abundantly; Miss O. Hadfield! At Hursley, plentiful in and about the park on crab and hawthorn; Mr. Wm. Whale! Bishopstoke; the Dean of Winchester. Frequent, I believe, in the New Forest. Not found in the Isle of Wight in a native state, at least in the present day, a curious fact in the geography of the species, as the country is one to all appearance admirably suited to its production, abounding, as it does, with all the trees to which this parasite is most attached. Reiterated inquiries of the country people, who uniformly deny its existence, and fruitless personal search for several years, have convinced me that

some unknown, but insuperable bar is opposed by Nature to the spontaneous dissemination of the mistletoe over this island, since, where it has been introduced from motives of curiosity, it has not multiplied and dispersed itself in the vicinity. Gathered some sixteen or eighteen years back in a wood at Apse Farm, near Shanklin, on crab and whitethorn, by Mrs. T. Harrington, as I was informed by the lady herself, but it cannot now be found there. A very maritime climate, as that of small islands, is possibly adverse to this plant, as it fails in Anglesea, the Western Isles, the Isle of Man?; the whole of Ireland, and is very rare in Scotland.

Sambucus Ebulus. In waste ground, about hedges, ruins, by road-sides and in pastures; very rare in the Isle of Wight, if not in the county generally. In hedges, borders of fields, and even amongst the crops, near St. Catherine's Point, in one place abundantly, also on banks by the road-side to the lighthouse, sparingly. In a large arable field under Ashey Down, a little above Kerne, where it proves extremely troublesome, from the obstruction the tough, creeping roots offer to the plough in its progress over the soil. I am told it grows in one or two other spots near Kerne, but more sparingly. Between Newport and Carisbrook Castle; Mr. W. D. Snooke. I have never seen it there. Between Luccomb and Bonchurch; Mr. S. Woods in Bot. Guide!!! and where I found it some years ago in very small quantity, and almost choked with grass and bushes, betwixt Chine Cottage and Rose Cliff. Near Carisbrook Castle, and near Housborn (Osborne?); Mr. E. Forster, jun. in Bot. Guide. In a field called West Close, on Ford Farm, near Red Hill; Mr. Wm. Jolliffe. It formerly grew in the orchard at Crooks Cottage, Middleton Green, but has not been seen there for many years. For the county I have but the following station at present: close to the palings near the turnpike at Warnford Park, West Meon; Miss Hawkins. Meadow adjoining the churchyard at King's Worthy, about two miles and a half from Winton; Dr. A. D. White. Amongst the rubbish and ruined foundations of the Priory, Selborne; Rev. G. White. Hedge in Selborne Park; Dr. T. B. Salter in Phytol. i. 1134. Some of these stations have a suspicious appearance, whilst others are apparently natural. I believe the Danewort to be a genuine native, but, like *Cynoglossum officinale*, *Atropa Belladonna* and some other plants, partial to soils containing nitrate of potash, thus accounting for its frequent appearance about churchyards, ruins, and similar places where that salt abounds, without supposing it to have been originally introduced by man's agency.

Sambucus nigra. Abundant everywhere in the county and island, in woods, thickets, copses and hedgerows. Var. β . Leaflets ternate, orbicular. *S. nigra*, *s. rotundifolia*, D. C. Prod. iv. p. 323. By the road-side betwixt St. Lawrence and Niton; Mr. Wm. Wilson Saunders!!! The only tree I have seen of this curious form is the one above mentioned, and which has had the trunk apparently sawn off a few feet from the ground, but has since shot out branches vigorously, though I have not seen flowers. Cuttings planted in a garden at St. John's, near Ryde, preserve the trifoliate and rounded character of the leaves, but have not yet bloomed. I have seen this variety in the Botanic Garden of Trinity College, Dublin, and in that of Mr. Borrer at Henfield, but never saw it wild except in the present instance. Var. γ . Berries pale, nearly colourless. A single tree in a field-hedge below Mousehole, near Newchurch, Isle of Wight, November, 1845. Small thickets of scrubby elder and whitethorn constitute the sole ligneous vegetation on Longwood Warren, near Winchester, a tract remarkable for its desolate aspect, and the peculiarity of its floral productions, as I shall show hereafter.

The elder is one of those British arboreous vegetables which, like the lime and beech, has by some been considered doubtfully indigenous upon equally insufficient grounds, resulting from the want of careful observation and inquiry. Loudon says (Arbor. Brit. ii. p. 1028), "A native of Europe and part of Asia, in hedges, *coppices* and *woods*; *plentiful* in Britain in *like situations*, but probably not truly indigenous." Here we have a perfectly gratuitous assumption, unsupported by any reasoning whatever, and directly opposed to the conclusion naturally derivable from the preceding clause of the sentence. For if the elder be an acknowledged *native* of Europe and Asia in hedges, coppices and woods, and *plentiful* in Britain in *like situations*, the probability surely is not against, but absolutely in favour of its indigenous origin; for the perfect parity of condition in which it is found here and abroad leaves no room for any other inference, no space to insert and drive home the wedge of counter argument. Unless, therefore, some reason be advanced to qualify or invalidate the prior clause, which the author has not vouchsafed his readers, the latter has no claim on our attention or belief. The fact is, that in the south of England no shrub is more evidently and indisputably wild than the common elder, associated, as it is, in the most sequestered woods, with the wayfaring tree and the guelder-rose, and indeed more common and universal in its distribution than either of these last, the indigenous claims of which might just as reasonably

be called in question. That it is only naturalized through cultivation in Scotland and perhaps the northernmost parts of England, I am disposed to think probable, from the consideration of its geographical range on the continent of Europe, where it seems to advance a little beyond the limits of the wayfaring tree (*Viburnum Lantana*), which fails in Denmark and Scandinavia, whilst the elder reaches the southern part of both these countries. I question whether it is anywhere native beyond lat. 55° or 56° in Europe, as in all the floras I have consulted that relate to districts lying under and above these parallels, the elder is usually mentioned as found only about houses and villages, and in hedges (ad domos, pagos, sepes), and if my memory serves, it is in such half-wild situations alone that I have remarked it in Scotland, though I do not pretend to affirm this positively. Here, and over the south and middle of England it is a perfectly sylvestral tree, and as such, of the commonest occurrence. The key to London's opinion may, I think, be found in a farther remark of his (same page) that "it is common in all parts of England in the neighbourhood of houses and gardens," situations in which that clever and laborious author would probably be oftenest in the habit of seeing it here and in the north, of which last he was himself a native. It is no argument against the question of spontaneity, that a shrub so useful as the elder is for various domestic purposes and for fences, should as often be found in the vicinity of habitations as in places remote from human occupation; the wonder would be if it were not so; its presence or absence in primitive woodlands is the point to be determined. I should not have dwelt thus long upon the supposed introduction of the elder into Britain, as I believe few, if any, of our *English* botanists at least, are disposed to doubt its claim to nativity, but I have done so to show on what flimsy grounds the contrary opinion has been emitted respecting this and some other of our indigenous trees and herbs, and which we know how readily it has been caught up and repeated from mouth to mouth, and copied from book to book,* in most instances without an attempt made or a reason advanced to prove the truth of the position. I may here remark, that much of the scepticism we see displayed on the subject we have just been considering, arises from a disposition, in some measure natural,

* In Selby's Work on British Forest Trees, for instance, in which much scope was afforded for original discussion and research into this interesting question, not a step has been made in advance of previous writers on the same subject, old opinions are repeated and acquiesced in, as if indisputable themselves, or it was too much trouble to controvert or refute them.

to regard objects that are strange to ourselves as adventitious elsewhere. The lime, for example, is familiar to most persons only as a planted tree; many pass their whole lives without knowing or even suspecting that our own woods in England spontaneously produce it, and being ignorant of, and not caring to know about its geographical distribution, hastily conclude it to be a stranger to the country, and are with difficulty persuaded to the contrary.*

I have been at much pains to discover a character betwixt our European elder and that of America (*S. canadensis*), and believe them to be hardly even varieties, though hitherto kept distinct by botanists of both continents. The latter does not usually rise so high as the European, and is thought to be less ligneous in texture. I have, however, repeatedly found it with stout trunks from four to six inches or more in diameter, the wood as hard as in the European tree. The leaflets are usually, but not always, longer and narrower than in our elder, and more frequently seven or nine than five, but I have

* Mr. H. C. Watson, speaking of *Tilia parvifolia*, says, "we must explain its present scarcity on the supposition that human operations have tended more towards extinguishing, than towards encouraging and diffusing the species in England."—*Cybele Britannica*, i. p. 243. This is no doubt a just remark so far as the treatment of the species is concerned, for being worthless as timber, it is usually cut for brushwood, and consequently seldom permitted to propagate itself in the natural way by seed. I think, however, that the epithet of "scarce" is not strictly applicable to the small-leaved lime; it is rather, like the hornbeam, a local than a scarce species, occurring in great abundance in certain parts of Essex, Suffolk, Lincoln and Beds, and not uncommonly in other counties of the south and east, though Mr. Watson would seem to credit it as chiefly native to the west of England. To me it appears to form a broad belt, variously interrupted, across the whole island, but with a tendency rather to an eastern than a western distribution, yet belonging, doubtless, to the English and not to the Germanic type. Being of little value, always kept low, and growing amongst other and better known, because more esteemed trees, it is often overlooked or disregarded even by the woodmen themselves, and hence appears rarer than it really is. I regret to see the dubious term of "denizen" applied to this truly British tree in the excellent and most original work I have just quoted, seeing that the weight of its authority will be used to countenance, if not perpetuate, what I am persuaded is a phyto-geographical error. Mr. Watson is doubtless right in his conjecture that the typical form of the Linnean *T. europæa* is our *T. parvifolia*. This is clear from the 'Flora Suecica,' because in Sweden the small-leaved is the only native form of the lime, unless, perhaps, in Scania, where, according to Fries, our *T. europæa* (*T. vulgaris*, Hayne) is spontaneous, though Fries does not consider the two distinct (Corp. Fl. Prov. Suec. i. Scan. p. 80), and both these and *T. grandifolia* were all included in the 'Species Plantarum' under *T. europæa*, a name which Fries retains as a common designation for the two former alone. For notices of the wild lime in England, see 'Correspondence of Ray,' published by the Ray Society, 8vo., 1848, pp. 43 and 237.

seen *S. nigra* in our English hedges assume the form and number of leaflets of the Canadian variety, and in all that regards the cymes and their flowers, berries and seeds, I can find no difference whatever on the most minute and oft-repeated comparison. *S. canadensis* abounds throughout America from Canada to Carolina and Georgia. I have carefully examined the living plant from Quebec to Savannah, and westward to Louisiana and Mississippi, and remarked no change of character or habit throughout this vast area, except that in the central and southern states it was mostly confined to swamps, whilst in New England and Canada it grew more in drier places, fences, &c., like the European tree, a difference attributable to the great diversity of climate under which it is found on that continent, requiring a cooler or warmer locality according to the latitude. I have seen this or our European elder thriving and flowering luxuriantly in the sultry gardens of Barbados and Trinidad, where it is cultivated for medicinal purposes. Loudon (*Arboretum Brit. Art. Sambucus*) observes of *S. canadensis*, that from the suffruticose character of the branches, and the comparative tenderness of the plant, it is only fit for dry shrubberies in favourable situations; a strange thing, if true, since this species must be exposed, over a great part of its native country, to a degree of cold far surpassing any to which it can be submitted in our own temperate land. Such a semi-herbaceous plant I have never fallen in with wild, and suppose some half-shrubby, foreign species of *Sambucus* may go under the name of *canadensis* in our gardens and nurseries. I have the true *S. canadensis* now copiously under cultivation from seed I collected in Upper Canada, and soon hope to establish its identity with our European elder by actual experiment.

Viburnum Lantana. In dry, elevated, or rocky woods and thickets, on bushy hills, banks and in hedges, sometimes on old walls; extremely common throughout the county and island, wherever the soil is at all calcareous. Less frequent on the clay or eocene formations, yet not uncommon about Ryde, in Quarr Copse, and most woods about that town. Abundant amongst the rocks at Eastend, and from thence all along the Undercliff a prevailing shrub. In upland woods betwixt Shanklin and Bonchurch, also about Newport, Carisbrook, Gatcomb, Shorwell, Calbourne, Yarmouth, &c., in plenty. About Winchester, Petersfield, Selborne, Andover, and most other parts of the county on the chalk, abundantly. Rare on the green sand. A conspicuous ornament of our woods and hedges at all seasons, in early summer enlivening them with its dense, hemispherical

cymes of rather ill-scented flowers, and later with the glowing scarlet of its half-ripe, polished, coral-like berries, that at length assume a deep purple black, with a somewhat glaucous bloom, finely contrasting with the softly-blended shades of red, brown and yellow displayed in the broad, plaited or wrinkled leaves previous to their decay. A variety with the leaves dark green, shining and glabrous above, is not unfrequent here, and the shrub is very commonly cultivated in the Ryde gardens. The fruit is sweetish, and rather pleasantly tasted, fully as much so as that of *V. Lentago* or *V. prunifolium*, which I have seen sold in the markets at Philadelphia and Montreal, and it is eagerly sought after by our feathered songsters in autumn, that eat out the soft pulp, leaving the skins of the berries attached to the fruit-stalks. This shrub is called whip-crop in the Isle of Wight (sometimes applied to *Pyrus Aria*), from the occasional use made of its long, tough shoots by carters and ploughmen for whip handles, whilst in southern Russia, besides serving a precisely similar purpose, the bored stems were exported even to Germany, for the tubes of tobacco pipes (*Pallas Fl. Ross. i. part 2, p. 31*). The North American way-faring tree, or hobble-bush (*V. lantanoides*), is a perfectly distinct species, though strangely enough thought by the author of the '*Arboretum Britannicum*' a variety of the European.

Viburnum Opulus. In low and moist (rarely in dry upland) copses, thickets and hedges, and by stream sides; extremely frequent over the whole county and island. Very common in damp woods around Ryde, as in Quarr Copse, at Apley, &c. Plentiful in copses about E. Cowes, Newport, Yarmouth and Calbourne. Very common in woods at Selborne, at Sheat and elsewhere about Petersfield, Bishopstoke, Fareham, Boldre, &c. Var. β . Lobes of the leaves very long and acuminate.* In a copse near Hardhill Farm, near Cowes, Isle of Wight. Var. γ . Radiant flowers of the cyme herbaceous, greenish, or variegated green and white. In Whitefield Wood, betwixt Ryde and Brading, 1842, a single tree. In Elm Copse, near Calbourne, several bushes, June, 1845. A no less conspicuous ornament of our damp, than the foregoing of our dry, woods and hedges, decorating them with its broad flat cymes, bordered with a coronet of

* Do not the lobed leaves in this species and a few more of the genus *Viburnum* point at an occult, pinnated arrangement, the gland-like appendages near the summit of the petioles being, in fact, rudimentary leaflets? The near relation of *Viburnum* to *Sambucus* favours this supposition, which, if correct, the lobes of the leaves exhibit the uppermost pair of leaflets with the terminal one united.

purest white, in May and June, and its large clusters of fruit, of bright translucent scarlet, in September and October, whilst the vivid purple of the fading leaves combines with the varied tints of the wayfaring tree, the maple and dogwood, to the gorgeous hues of the autumnal landscape. This shrub often rises with us in the wild state to 10 or 12 feet, and with cymes 4 inches in diameter; a variety with very small leaves is likewise frequent. The fruit, which is intensely acid and bitter, finally becomes disgusting from its odour, and hence the plant is sometimes called stink-tree in this island. The tall cranberry of the Americans (*V. Oxycoccus* and *V. edule*) is now considered identical with the European *V. Opulus*, of which it seems to me to be scarcely even a variety, my specimens gathered in Canada differing in no respects from Hampshire ones, and the berries I found to be equally bitter, sharp and unpalatable, yet are they eaten, as Dr. Asa Gray observes, as a (poor) substitute for cranberries in the northern parts of the United States. Gmelin (*Fl. Sibirica*, iii., p. 146) relates a strange and rather long story from Steller, of the property these berries are said to possess of depriving corn brandy of both taste and smell, and reducing it apparently to so much water, yet retaining its power of intoxicating rather increased than diminished by the addition. When planted in a dry garden, the interior flowers of the cyme quickly evince a tendency to become radiant and abortive like the outer, or to assume the conditions they present in the well-known snowball tree of our shrubberies.

†*Lonicera Caprifolium*. Woods and thickets; very rare. In two places in the middle of a wood at Appleshaw, apparently quite wild; Rev. G. F. Dawson in litt. I have twice carefully searched for this rare honeysuckle in Mr. Dawson's station, which is a steep wood at the north end of the village, and in part nearly facing the church, but failed in finding the spot, as did also Mr. Whale, of Andover. The wood, which is large and thick, has been partially cleared of brush, so that it is very possible the *Lonicera* may have been removed with the underwood, or have escaped observation in the part left standing, and which is not everywhere easily explored from its density. In the former case the plant will no doubt spring again from the root and attach itself to the new undergrowth, in the latter a persevering search will bring it again to light. I have seen specimens from the station in the herbarium of Miss O. Haddfield, of Ventnor, Isle of Wight, communicated by the discoverer. The locality is a good one, but geographical considerations are opposed to the idea of the species being truly indigenous to this country, though decidedly

a well naturalized plant in several parts of the kingdom. The wood in question abounds with *Colchicum autumnale*, and produces *Aquilegia vulgaris*, *Vicia sylvatica* and other good plants, whilst the picturesque village of Appleshaw, with its long lines of stately walnut trees, is well worthy of a visit from the lovers of rural beauty and retirement.

Lonicera Periclymenum. In woods, hedges, thickets, on rocks and old walls throughout the county and island most abundantly, filling the air along our green lanes and bye roads with the grateful perfume from its flowering coronals of white, crimson, or golden yellow. The variety with sinuate leaves (oak-leaved honeysuckle) is not very uncommon in our woods, and I think with the authors of the 'Flora Hertfordiensis,' is probably a mere accidental variation in the straight succulent shoots, either natural or produced by the bill of the woodman in clearing the brush, as I do not remember ever to have remarked such leaves on the older flowering shoots. The leaves of this plant are sometimes with us perfectly glabrous on both sides, and a little shining, but more commonly finely pubescent underneath.

N.B.—*L. Xylosteum* should be looked for in dry, hilly copses on the chalk in the east and north of the county. I have gathered it truly wild and most abundant in upland woods at Amberley, in Sussex, where it was first discovered by Mr. Borrer.* Though a shrub of a decidedly eastern and continental tendency, it has been found in several parts of England, and even in Forfarshire according to Mr. Gardiner. It ranges over Europe, especially the northern parts, to lat. 60°—63°, but is rare in the western and maritime countries of the continent.

Sherardia arvensis. Extremely common in waste and cultivated places, corn-fields, fallows, woods, &c. all over the county and Isle of Wight, on dry, light soils.

Asperula cynanchica. On dry, open, hilly pastures, heaths and banks; abundantly in the chalk districts, on the high downs and at the sea level. Very fine on banks at Ventnor, profusely about Caris-

* In one of these high, hill-side copses, which Mr. Borrer does not seem to have known of, I found many very stout stems of the fly honeysuckle, evidently of great age, the brushwood in some parts mainly consisting of this shrub. An old farmer who was watching my proceedings from a gate a great distance below, as I afterwards found, to induce me to buy or rent the land of him a bargain as an eligible building investment, told me he had long intended grubbing up the copse, but refrained from so doing at the instance of his son, who wished it preserved for the amusement of rabbit shooting.

brook Castle and most other parts of the island, and I believe equally common throughout the county. Wheely Down; Rev. E. M. Sleaden. Maindell chalk-pit, Down-lane, Portsdown; Mr. W. L. Notcutt. A charming little plant, of exquisite grace and delicacy when closely contemplated.

Asperula odorata. In woods, groves, and on shady hedge-banks in various parts of the Isle of Wight and county; abundantly. Common about Ryde, Cowes, &c. Woods at Selborne, abundantly. Wickham. Mitcheldever Woods; Rev. D. Cockelton of Bullington. Andover; Mr. Wm. Whale.

Galium cruciatum. In dry woods and thickets, borders of fields, on sunny banks and under walls, very frequent in the Isle of Wight, and I believe as much so in mainland Hants.

——— *palustre.* In pools, ditches and other wet places, abundantly; the var. β . *Witheringii* (G. *Witheringii*, Sm.) not unfrequent also.

——— *Mollugo.* In hedges, bushy places and borders of woods almost everywhere. Abundant all over the Isle of Wight, where our hedge-rows are conspicuously adorned with the copious milk-white flowers in the latter months of summer. Var. β . *ochroleuca*; flowers yellowish or cream-coloured. Field-hedge near Plumbley's (new) Hotel, at Freshwater Gate, in considerable plenty, though confined to one spot, growing with the ordinary white sort and strikingly contrasting with it, July 7, 1844. I found it with flowers more of a yellowish green betwixt Shanklin and Cook's Castle, July 23, 1845, and which my friend Mr. Wm. W. Saunders has remarked betwixt Ventnor and Bonchurch not uncommonly. In our hedge-rows this plant clambers over the shrubs to the height of many feet, and then is a great bushy branched plant, but in dry, open places and chalky pastures, it is much smaller, less ramified and decumbent, when it may be often mistaken for *G. erectum*, if indeed that species has any separate existence as undeniably distinct from *G. Mollugo*.

——— *verum.* In dry fields, pastures, by road-sides and in loose sand of the sea-shore; abundantly. Plentiful amongst the sandy hillocks on St. Helen's Spit, Isle of Wight, &c. The light airy panicles, with their myriads of tiny golden stars, show doubly beautiful by contrast, rising tall and taper amongst the countless snowy blossoms of *G. Mollugo* on the summit of some grassy bank.

——— *saxatile.* On dry, barren, sandy heaths, commons and banks; abundantly. Profusely on Royal Heath, Sandown, and on the earthen fences along the road over Bleak Down from Newport,

&c. Common, I believe, throughout the county. Titchfield Common; Mr. W. L. Notcutt.

Galium uliginosum. In moist, boggy or marshy places, thickets, &c. Plentiful in several localities in the Isle of Wight, but by no means a general species here. Bog at Cockleton, near W. Cowes. Marsh at Freshwater Gate. Willow thickets by Langbridge and Budbridge, and a few other spots. The plant does not turn black in drying like *G. palustre*. I have no mainland station to record for this species, but cannot suppose it to be wanting or even uncommon in Hants.

—— *tricornis*. In corn-fields and other cultivated land, and in dry waste places, common in various parts of the Isle of Wight, and most so in West Medina, where the chalk is more predominant than in East Medina, and the proportion of arable to pasture and woodland much more considerable. About Thorley and Wellow the corn-fields are often quite overrun with it. About Cowes not unfrequent, corn-fields above St. Lawrence and Sandown Bay, at Carisbrook, Bonchurch, &c. Very rare about Ryde (on the eocene or tertiary deposit), and not common on the green-sand. Andover, towards Weyhill, 1848. Liphook, Bot. Guide, and doubtless not uncommon in mainland Hants, though I have not received it from my county correspondents. Often, I dare say, passed by for *G. Aparine*, but easily recognized by the large tuberculate globose fruit, which, suspended from the triple downward-curved pedicels, pretty exactly imitates the three balls as they are seen hanging out over a pawnbroker's shop. Flowers occasionally 5-cleft and pentandrous, or trifid and triandrous; styles often two, distinct.

—— *Aparine*. About hedges and fences, in woods, thickets, corn-fields and waste ground, abundant everywhere. A very widely-diffused plant over the earth, I have found it apparently indigenous in woods at New Orleans, though thought to have been introduced to America (where it is very common) from the Old World. The herb, chopped small, is given to goslings in this island. *G. anglicum*, *G. Vaillantii*, and *G. erectum* may all be reasonably expected in this island and county, the last I more than once imagined I had found here, as did my friend Dr. T. Bell Salter, but I believe it was only a small erect form of *G. Mollugo*, which is not uncommon in dry, chalky pastures and bushy places. I do not, I confess, understand that plant, which appears to me, both in description, plate (in E. B.) and specimens, to approach much too near to *G. Mollugo* to be satisfactory. A specimen of *G. boreale* was shown to me last summer, at

Andover, by Mr. Wm. Whale, labelled Magdalen Hill, near Winton, 1838; but although the genuine plant, I cannot venture to include in a Hampshire list a species so foreign as this to the south-east of England, particularly as Mr. W. did not gather it himself at the station, and cannot now remember the exact history of the specimen. The hill itself, too, is as unlikely looking a place for *G. boreale* as can well be imagined; some mistake has unquestionably been committed.

Rubia peregrina. Climbing over bushes, rocks and stony banks, in woods, thickets and hedges in numberless places in the Isle of Wight, and usually very abundantly. In various places about Ryde, as in Quarr Copse and Church Lane Binstead, and most profusely at the Priory, where (as well as about Steephill and thence onward towards St. Lawrence) it forms a dense mat on the underwood all over the grounds, and from off which it may be pulled by handfuls. Plentiful about Yarmouth, Freshwater, Cowes, &c., &c. From the persistent nature of its leaves it is here called evergreen cliver (cleaver is the name for *Galium Aparine* in most parts of England), and the perennial stem often ascends trees to a considerable height.* This is usually described as square, but it is only the branches which are quadrangular, the stem itself is quite terete, woody, and covered with a fine ash-coloured epidermis, which, when old, peels off in paper-like flakes, and though not in general thicker than a quill, I have reason to believe lasts for several years; even the flowering shoots are more than annual, perhaps biennial or even perennial, but certainly less enduring than the main stem, which is truly suffruticose in this species, and unlike the square and very brittle branches, extremely tough and flexile. The leaves are exceedingly inconstant in number and form, varying from 4 to 6 in each whorl (commonly 4 or 5), mostly reduced to 2 or 3 beneath and amongst the flowering ends of the branches, and of all shapes, from lanceolate or elliptic-lanceolate to broadly elliptical, ovato-elliptical, ovate, obovate or even suborbicular, the smaller usually the broadest. Corolla truly rotate, without any tube, granulated above, the innate anthers of an oblong rectangular figure, plano convex and somewhat arcuate or decurved at each end. The small, black, juicy, berry-like fruit is often abortive, wholly or partially,

* I measured a stem from the Priory woods, near Ryde, which had ascended a tree to the extent of ten feet, hanging detached or at some distance from the trunk like a cord, and though the intermediate part appeared quite dead and withered, the summit had shot out into a bundle of green and vigorous leafy branches, high over head amongst the boughs of its supporter.

on the same plant, at other times matured in abundance. The slender bright red root abounds in colouring principle, and would probably, if cultivated, yield as good madder as those of *R. tinctorum*. I suspect the *R. lucida* of southern Europe is not distinct from ours, whose variable habit, Bertoloni remarks (*Flor. Ital.* ii., p. 148), has given rise to several false species, which he has traced into one another. *R. peregrina* is given by Ledebour as a native of the south of Russia; may not his plant be different from ours, which is quite a species of southern and western Europe, confined to the Atlantic and Mediterranean climates of the continent, and wholly unknown to all the interior countries? It is hardly credible, therefore, that so tender a plant should be able to withstand the rigorous winters which distinguish the climate of Russia proper, even as low as the Black Sea provinces. I am at present unable to assign any station for *R. peregrina* on the mainland of Hants, where, if not wanting, it must be very uncommon, yet I cannot help thinking it must grow along the coast at least, though I have not myself remarked it or heard of it from others. The wild madder is assuredly one of our most beautiful native plants, and its light panicles of greenish yellow flowers are not devoid of elegance, relieved by the deep verdure of its thick, shining, persistent leaves, which, when young, have a fine reddish brown tinge, and contribute, by the exuberant profusion with which they clothe rocky bank and bushy brae in many parts of this island, to enliven the monotony of the winter landscape, as much as they add lustre to the gayer garniture of summer scenery.

†*Centranthus ruber*. Subspontaneous; on old walls and buildings; not uncommon. Plentiful on Yarmouth Castle and on the garden wall of Morton House, Brading. Carisbrook Castle walls. On the rocks behind the houses at Ventnor, &c., but in all cases evidently originating from gardens, and retaining the variety of colour imparted to the flowers by cultivation. Said to be abundant in old chalk-pits in Kent, and, as Smith thought, perfectly wild, and on the rocks at Dawlish it looks more like a native than in any place I have seen it in elsewhere. The French Floras, even of the south, give it as mostly naturalized, nor do the Italian stations seem less exceptionable than our own. Gerarde says it was not common in England in his time, but being a plant of western and maritime Europe it may possibly be aboriginal on calcareous rocks in the south of England, though as far as regards the Isle of Wight and Hampshire generally, a certainly introduced and semi-naturalized species.

Valeriana officinalis. In wet thickets, on the banks of ditches

and rivers; frequent in the Isle of Wight, and I believe throughout the county. Common along the course of the Medina above Newport, at Blackwater, &c. In several parts of Sandown Level, at Yarbridge, Alverstoke, and several other places, often very abundantly. Winnal-water meadows. Bridge at Carns and side of Titchfield River; Mr. W. L. Notcutt. W. Meon, Warnford; Rev. E. M. Sladen. Itchen Stoke; Miss L. Legge. *V. sambucifolia* may possibly be found in the county, but of this I know nothing, and judging from the characters assigned it in the Manual, it seems to have little else than the larger number of leaflets to distinguish it from the common *V. officinalis*, a mark on which it would be unsafe to rely, as we have lately seen that in the elder, which this species is thought to resemble, the leaflets vary from three to five, and sometimes to as many as seven or nine, whilst in form they are no less inconstant.

Valeriana dioica. In low, wet meadows; very rare in the Isle of Wight. In deep, boggy ground, apparently composed of comminuted shells, at Easton Fresh-water Gate, pretty plentifully. By a small stream at the west end of Briddlesford Heath. In some wet meadows near Thorley; Rev. James Penfold!!! In Winnal-water meadows Winton, abundant. Warnford; Rev. E. M. Sladen.

Valerianella olitoria. In cultivated ground, corn-fields, and on hedge-banks; extremely common. Var. β . Flowers white; in a field near Shanklin.

————— *dentata*. In cultivated fields, chiefly amongst corn; very common. Abundant in corn-fields about Ryde, Sandown, Cowes, and most other parts of the Isle of Wight. Frequent, I believe, over the whole county, though I have omitted to note its occurrence in mainland Hants. Nore Hill; Dr. T. B. Salter. By Hill Copse, Fareham; Mr. W. L. Notcutt. Var. β . Fruit clothed with incurved, rigid hairs, cup of the calyx small (*Fedia mixta*, *Vahl*). In a corn-field with the next species, by a creek of the Medina, adjoining Medham brickfield, in great plenty, July 13th, 1839. In these specimens the hairs are but sparingly found, and not easily seen without a glass.

————— *Auricula*. In cultivated fields amongst corn, &c., plentiful in various parts of the Isle of Wight, but rather less frequent than the last, of which I more than suspect it to be a variety merely. About Ryde, Cowes, Freshwater, Yarmouth, Haven Street, &c., often very abundantly, and probably equally frequent on the mainland.

Obs.—Var. *carinata*, which abounds in Normandy and the Chan-

nel Islands, will probably be found in this, as it has already been in other counties of England; but its great resemblance to *V. olitoria*, from which it is scarcely distinguishable but by its fruit, renders its detection less easy. M. de St. Amans (Flore d'Agen, p. 14) makes them varieties, and says he has found the fruit of both on the same plant. Without pretending to decide the point, I incline to the belief that *V. carinata* holds the same relation to *V. olitoria* as *V. Auricula* does to *V. dentata*, and that the value of each as distinct species is, to say the least, very problematical. We have only to conceive the two anterior barren cells of *V. dentata* to become inflated, and consequently gibbous, and then I do not see in what it would differ from *V. Auricula*. The latter, though till lately overlooked or disregarded even as a variety, was early noticed by Morison, who described and figured it in his 'Historia Plantarum,' vol. iii. p. 104, tab. 17, sect. 7, No. 37.

Dipsacus sylvestris. In moist hedges, wet woods, thickets, and on ditch-banks, extremely common over the whole county and Isle of Wight. In the wet woods about Ryde I have seen this species nearly seven feet high. The flowers expand in successive rings or zones (of a close or compressed spiral) on the large, conical heads, commencing about the middle of each cone, and ending at the base and apex, or by a centripetal progression of development.

——— *pilosus*. In wet hedges and lanes; an apparently uncommon species in mainland Hants, and not found in the Isle of Wight. Selborne as noticed by White, and where I find it plentiful along moist hedge-banks and borders of wet thickets in the valley towards Priory. In watery lanes between Hambledon and Wickham; Rev. Messrs. Garnier and Poulter in Hamp. Repos. * By the road-

* I must here correct a mistake which has been continued through all the preceding numbers of these Notes, in attributing, as I was led to do through wrong information, the list of county plants in the 'Hampshire Repository' to Dr. Pulteney, whereas the real authors of that list were the present Dean of Winchester (Dr. Garnier) and the Rev. Mr. Poulter, late of Warnford, near West Meon, the similarity of whose name to the Dorsetshire botanist and physician's most likely occasioned the latter to be reputed the compiler of the Catalogue by the author of the 'Botanist's Guide.' This information I had from the Dean himself, a short time back, and who kindly corrected another mistake, for which I am wholly responsible. Under the head of *Corydalis solida*, at p. 336, I mentioned my belief that the Dean (its discoverer at Wickham) had formerly told me the station was the site of an old garden, but such was not the case. The plant grew in considerable abundance in the heart of a wood now destroyed, to all appearance perfectly wild. Such being the fact, and this species native to every country of central and northern Europe, France, Germany,

side going from Bishopstoke station towards Swatheling (one quarter of the distance from Bishopstoke); Dr. A. D. White. Hurstborne; Rev. G. F. Dawson in Miss Hadfield's herbarium! North Fareham; Mrs. Robinson in Mr. W. L. Notcutt's list of Fareham plants in 'Phytologist' ii. p. 207.

This plant inclines strongly to the eastern or "Germanic type" of distribution, is very rare in the west of England, and unknown in Scotland and Ireland, doubtless from their ultra insular or oceanic climate being unsuited to its nature. From its close proximity to the mainland, the influence of the maritime or island climate is greatly modified in the Isle of Wight, and assimilated to that of the opposite mainland coast; still the insularity of our position is shown by the absence from the Vectian flora of certain plants common to the interior of the county, as *Phyteuma orbiculare*, *Convallaria majalis* and *multiflora*, *Dipsacus pilosus*, *Daphne Mezereon*, *Paris quadrifolia*, *Campanula patula*, *Herminium Monorchis*, &c., and the comparative rarity of others, as *Verbascum nigrum*, *Rhamnus catharticus*, *Cephalanthera grandiflora*, *Bryonia dioica*, and some more; all species, be it observed, either very rare or quite wanting on the extreme western side of Britain, in Wales and Ireland. That the above is the true cause of their absence or unfrequency in this island will, I think, appear sufficiently obvious from my remarks on the distribution of the bryony at p. 369, and not for lack of congenial soils and situations perfectly adapted to all and each of the species just enumerated, on its infinitely varied surface, which is a complete epitome of the entire county. But to compensate for the want or scarcity of these interior or continental species, the Isle of Wight produces many plants wholly or mainly restricted to itself and the opposite line of coast, as *Rubia peregrina*, *Iris foetidissima*, *Briza minor*, *Scirpus Savii*, *Cyperus longus*, *Senebiera didyma*, *Euphorbia portlandica*, *Linaria repens*, and some others, not to mention the host of purely maritime plants which could not of course exist but on the sea-shore.

Knautia arvensis. In meadows, pastures, cornfields and by waysides; common everywhere in the county and Isle of Wight. With

Belgium, Holland, Denmark and Sweden, I can see no objection to its admission into the Hampshire flora, and suspect that it has been rather too hastily placed on the alien list, and that whilst many of its habitats may be dubious, or even inadmissible, others will be found on renewed inquiry and examination to be truly natural ones. The figure in 'English Botany' was drawn from a Hampshire specimen sent by its discoverer from the Wickham station to Sir James Smith.

white flowers in a clover-field near Wellow, 1840. Var. β . Smooth, all the leaves undivided, Isle of Wight, E. K., Loudon's Mag. of Nat. Hist. i. p. 83. Var. γ . All the florets of the centre equal to those of the circumference. Banks at Ventnor and corn-fields near St. Lawrence; Mr. Wm. W. Saunders, 1841 !!! Called gipsy or Egyptian rose in this island, a name applied also, I believe, to the common garden scabious (*Scabiosa atropurpurea*).

Scabiosa succisa. In rather moist woods, meadows, and heathy pastures, most abundantly. These are often empurpled with its azure flowerets, unwelcome in their beauty as the earliest but surest token, that whilst nature wears yet an aspect green and fair, the noon-tide prime of the year has departed, and that ere long the "sere and yellow leaf" will give true but timely warning of the "dim declining days" that must succeed its fall. Faithful to the advent of this silent monitor, the great green locust (*Acrida viridissima*) begins to herald the approach of autumn with his shrill note of preparation, feebly at first, and solitary, till later, every hedge is resonant the live long night with the ceaseless, responsive chirp of the invisible choristers.

——— *columbaria*. On dry, and especially chalky banks and pastures; scarcely a common species in the Isle of Wight, though abundant enough in many places both here and on the mainland. About Carisbrook, frequent on the chalk about Appuldercombe, at Ventnor, Bonchurch, &c. Sloping banks above the Culver Cliff, Sandown Bay. Everywhere on dry slopes about Swainston, Rowledge, Westover, &c., often with lilac flowers. Maindell chalk-pit, near Fareham; Mr. W. L. Notcutt. Wheely Down, near West Meon; Rev. E. M. Sladen. Andover; Mr. Wm. Whale.

Eupatorium cannabinum. By rivers and ditches, in moist woods, hedges and other damp or marshy situations, extremely common everywhere. Remarkable as the only representative of the genus in Europe out of so many species inhabiting America, to few or none of which is it inferior in size or appearance. Sometimes (from the colour of its flowers?) called raspberries and cream in this island.

Petasites vulgaris. Probably a frequent, if not a common plant on the mainland of Hampshire, although not found in the Isle of Wight. Plentiful at Bishopstoke, by the river side near the church. Chrystal Abbey, about a mile from St. Mary Bourne, on the Hurstbourne road, in great profusion; Miss Hadfield! Abundant about Winchester; Dr. A. D. White. Andover; Mr. Wm. Whale.

N. B. — *Nardosmia fragrans* (*Tussilago fragrans*) is naturalized in various parts of the county and island by streams and on moist

banks; but species that, like this, maintain their ground solely by their creeping roots and not by seed, can hardly, I think, be admitted with propriety even into the ranks of denizens.

Tussilago Farfara. In moist fields, pastures, waste and arable ground, extremely troublesome and abundant on our stiff clay soils, on the north side of the Isle of Wight, and covering the wet banks of slipped clay along the entire line of coast where those formations prevail. Common in all parts of the mainland.

Aster Tripolium. On muddy sea-shores and in salt-marshes; not uncommon in the Isle of Wight. Ditches on Ryde Dover and about Springfield. Salt-marshes at Newtown, Yarmouth, and muddy shores at Brading, Wootton Bridge and elsewhere, frequent, and occasionally with the rays partially or entirely wanting. Common on most parts of the Hampshire coast at Havant, Emsworth, Fareham, in Hayling Island, &c., &c.

Erigeron acris. On dry, barren fields, banks and pastures; not at all unfrequent in the Isle of Wight, though scarcely to be called a common plant. In various places near Ryde, Newport, Cowes, Yarmouth, &c., very widely dispersed, and occasionally in profuse abundance. I have seen a dry, hilly pasture, which in summer is resonant with the shrill chirping of the field-cricket (*Acheta campestris*) between Apse and Ninham farms, near Shanklin, quite covered with it. Probably not uncommon over the county. Maindell chalk-pit, the Salterns, near Fareham; Mr. W. L. Notcutt.

Bellis perennis. Enamels our meadows, pastures and banks in lavish profusion.

Solidago Virgaurea. Plentiful in woods, groves, on hedge-banks, heaths and commons in most parts of the Isle of Wight, and I believe of the county generally. In Quarr Copse, Binstead, &c. Like *Eupatorium cannabinum*, the sole representative of its genus in Britain, if not in Europe, and as variable in its character as any of the species, which, with those of *Aster*, its close ally, are the opprobrium of American botanists, just as the brambles, willows and roses are stumbling-blocks to our botanists at home.

Inula Helenium. Truly wild in moist meadows, pastures, woods, about the borders of fields, by stream-sides, and amongst bushes, in very many parts of the Isle of Wight. Rare about Ryde, at Quarr and Binstead, and by a stream in a wood at Haven Street. Rather plentiful at the Bonchurch extremity of the Luccombe landslip (East end); Mr. Wm. W. Saunders!!! More common in West than in East Medina. Plentiful in a field by the Medina a little above West

Cowes, as noticed by my late lamented friend Samuel Hailstone, Esq. By the brook at the head of the marsh between Gurnet Bay and Hardhill farm. Frequent in pastures and thickets in various parts of the parishes of Thorley and Freshwater. Weston, Calbourne, Wellow, Ningwood and elsewhere. I have no data at present for showing its distribution over mainland Hants, but from its frequency in the Isle of Wight suppose it may not be uncommon in the county. By the road-side not far from Preston Candover, between Old Alresford and Basingstoke; Mr. Wm. Pamplin in litt. Called wild sunflower in the Isle of Wight.

Inula Conyza. In dry hedges, thickets and on grassy slopes, mostly, but not exclusively, in the chalk districts of the Isle of Wight, where it abounds. In the lane leading from Quarr Abbey to the Newport road in plenty, otherwise rare about Ryde. Plentiful at Bonchurch, Ventnor, St. Lawrence, and along the Undercliff generally. Frequent about Arreton, Brading, Carisbrook, at Yaresland, Northcourt, Adgeton Rowledge, &c. Frequent, I believe, in the county on the chalk. Maindell chalk-pit, Fareham, and Porchester road; Mr. W. L. Notcutt. Warnford; Rev. E. M. Sladen. Week-hill-hanger, Selborne; Dr. T. Bell Salter. Sometimes grows to five feet in height: the odour is very aromatic and agreeable.

Inula crithmoides. In muddy salt-marshes; very local in the Isle of Wight; more general along the shores of mainland Hants. In a creek of the Medina, about half a mile above East Cowes, but very sparingly; the late Mr. S. Hailstone!!! Fringes the margins of the brine-pans in the Newtown marshes in great abundance. Marsh near Hurst Castle; Ray, Bot. Guide. Wicor Hard; Mr. W. L. Notcutt! In several parts of Hayling Island, and shore betwixt Emsworth and Langston. Frequent, I believe, all along the coast of Hants where mud-flats occur. The golden samphire has an aromatic, not ungrateful smell, and a warm, pungent, saline taste, approaching in both respects to the true samphire (*Crithmum maritimum*), for which the fleshy leaves would perhaps be a good and much more accessible substitute.

Pulicaria vulgaris. In moist spots and pits where water has stood during winter, on village greens, and about farm-houses, in places trodden by cattle, but not commonly in the Isle of Wight. About Trouble-fields farm, Ryde, in some quantity. Abundant on St. Helen's Green. About Sandown, where it was plentiful some years ago in a deep pit or depression abounding in chamomile (*Anthemis nobilis*), just where the Ryde and Brading road branches off

along the bay to Shanklin and Yaverland. Near Lake, Apse, Walpen and Hardingshoot farms. I have gathered this species some years ago at Marchwood, near Southampton, but have never received specimens or seen it in any of the local lists of the county plants with which I have been favoured by correspondents, except from Mr. Whale, of Andover, with whom I have seen examples, collected near that town. Its plain, inconspicuous aspect, rather perhaps than any great degree of rarity, causes it to be overlooked or disregarded by collectors. Inner pappus much shorter than the florets; achenes terete. A good example of the eastern or "Germanic" type, which, in the Hants Flora, predominates over the "Atlantic" or western type of vegetation, the latter beginning to develop itself sensibly beyond the meridian of Newport and Winchester, and especially visible in the south-west portion of the county, between the Southampton estuary and the Dorsetshire boundary (New Forest district), becoming very decidedly marked in the last-named county.

Pulicaria dysenterica. In moist places by road-sides, in lanes, woods and on ditch-banks, abundant almost everywhere. The green margins of our lanes and bridle roads are commonly lined with this plant, which, in the autumnal months, displays its handsome, brilliant yellow heads of flowers, in a broad belt on either side of the traveller's path. Inner pappus as long as the florets; achenes strongly ribbed and angular.

Bidens tripartita. In ditches, ponds, and other watery places; much less frequent in the Isle of Wight than the next, and indeed may be called rare on this side of the Solent. In various parts of Sandown Level. In a ditch by Merry Garden. Margin of the pond at Hardingshoot farm in considerable plenty.

Bidens cernua. In similar places with the last, but far more commonly. In the foregoing stations for *B. tripartita*. Frequent along the Medina in several parts of its course, as about Cridmore, Rookley, &c. Near Gatcombe, Newchurch, Budbridge, Alverstton and various other places. Common on mainland Hants. Short Heath, near Selborne, &c., &c. Var. *B.* Much smaller, stem slender, simple. *B. minima*, L., F. Dan. ii. t. 312. Dillen. in Ray's Syn. i. p. 188, t. 7, right-hand fig. In a bog on the wet moors a little N.E. of Godshill, and nearly opposite Moor farm, Sept., 1843. In my specimens the heads of flowers are both erect and slightly nodding. The variety of these two species with radiant marginal florets has not occurred to my knowledge in the county.

Anthemis arvensis. In sandy, gravelly, or chalky fields, amongst

grass, clover, turnips, &c. (I have never seen it here in corn), more rarely on dry hedge-banks and waste ground; by no means uncommon in the Isle of Wight, but perhaps in most cases introduced with grass seeds from the mainland. On hedge-banks near Arreton. Plentiful amongst vetches in a field at the south end of Newchurch, June 1st, 1845, and in a grass field at Vinnicombe Barn, near that village, where the proprietor of the land complained of it to me as a most troublesome weed. In several places about Sandown, Shanklin, Newchurch, Godshill, Swainston, Bonchurch, &c., most frequently amongst clover, and hence scarcely persistent in its stations for any time. Near Andover, and seen in plenty by the side of the Andover road, going up the hill from the railway (Andover road) station. Winchester. The fine, large, white flowers are sweet-scented, with an odour, when bruised, like chamomile, but weaker, of which the herbage is nearly destitute, and it is the earliest species of its tribe to come into blossom, which it does here in May, if not sooner. I remarked in June, 1845, that in a field of vetches at Newchurch, upon which sheep were penned to eat them off, the *Anthemis arvensis* was cropped clean down to the roots by those animals, and though excessively abundant, not a plant was spared by them. This species ought perhaps rather to be encouraged than otherwise in clover and grass fields, as its sweet, aromatic qualities are probably salutary to stock of most kinds.

Anthemis Cotula. In waste and cultivated land, especially amongst corn, by way-sides, on dunghills, &c.; far too abundant over the entire island, if not equally prevalent throughout the county, as I believe it to be. Plentiful in Hayling Island, &c. Mr. Notcutt could not find it about Fareham (*Phytol.* ii. p. 491). Var. β . Leaves fleshy, dotted, stem procumbent. In loose sand on the beach at Norton Freshwater. In this variety, which I at first took for *Pyrethrum maritimum*, besides the above characters, the pales of the receptacle appeared to be broader or less setaceous than in the usual inland state of the species. This plant is a grievous nuisance to the diligent and thrifty, as it is obnoxious to the negligent or slothful farmer, speedily overrunning the land when not kept clean, and often nearly obliterating the corn crops in this island.* Here it is but too

* About Cowes, and in many other parts of the island, I have seen the standing wheat so full of morgan as nearly to hide the ground from sight. Amongst the men of the island "whose talk is of oxen," but few comparatively of the smaller occupiers of the soil are actuated with the zeal of Triptolemus Yellowley for the advancement of agricultural science, and the contention between Ceres and Flora for the possession

well and familiarly known as Morgan or Morgin (pronounced by the customary Vectian change of the *o* into *a*, Margin), in Sussex Mavin, a word, of whose etymology and proper orthography, if it have any written existence, I am ignorant. A unanimous accusation lies against this pernicious weed of blistering the feet, hands and open bosoms of the harvest men employed in binding up the sheaves and piling the shocks of wheat. That the imputation is well founded, the concurrent testimony of every labourer in the harvest-field leaves no room to doubt. The general opinion, gleaned from numerous and minute inquiries, I find to be, that the irritating effects of the plant are caused by the seeds when ripe, and are mostly manifested in the lower extremities, from the close adhesion of the achenes to the part by their rough surface, aided by the friction of the shoe, inducing, first abrasion, afterwards active inflammation, and even ulceration. I have been repeatedly assured by the country people that they have

of the land which of right ought wholly to belong to the grain-giving goddess, would as much astonish and grieve the heart of a farmer from the Lothians, as it might charm a botanist from that rich and thrifful corner of North Britain, were they to behold the fields that should be white to harvest with the unmingled fruits of skill and industry, overrun by a particoloured array of usurping weeds which ignorance, sloth, or want of capital permit to spring up unchecked. The subjoined spicilegium botanicum is merely a sample of what may be gleaned without labour from the too teeming lap of our Vectic Cybele in the way of agricultural nuisances. **Anthemis Cotula*, **Convolvulus arvensis*, *Adonis autumnalis*, **Ranunculus arvensis*, **Lychnis Githago*, *Papaver Rhœas*, **dubium*, *Argemone* and *hybridum*, **Alopecurus agrestis*, *Gastridium lendigerum*, *Briza minor*, *Euphorbia exiguæ*, **Peplus*, **helioscopia* and *platyphylla*, *Torilis infesta* and *nodosa*, *Pastinaca sativa*, **Scandix Pecten*, **Galium tricornæ*, **Melampyrum arvense*, *Silene anglica* and *inflata*, *Vicia hirsuta*, **tetrasperma* and **gracilis*, *Bupleurum rotundifolium*, **Lithospermum arvense*, *Galeopsis Ladanum*, *Valerianella dentata* and *Auricula*, *Linaria minor*, **Elatine* and **spuria*, *Chrysanthemum segetum* and **Leucanthemum*, **Orobanche minor*, *Specularia hybrida*, *Myosorus minimus*, with a host of others still commoner, homelier, or at best more pretty than profitable. Those with the asterisk are the most obnoxious to the farmer from their bulk or abundance, the remainder, if less injurious, are sufficiently plentiful to aid in exhausting the land, and appropriating that nourishment which ought to go to the nascent crop, and therefore are never seen in any quantity where good husbandry prevails and the ground is kept clean and in fair condition. To this censure on the general state of agriculture in the island, many honourable exceptions must be made amongst the class of practical farmers, upon whose land scarcely a weed is to be seen, whilst several of the great owners of estates, in devoting their time, energies and capital to agricultural improvement, are silently effecting a change in the deep-rooted prejudices and slovenly habits of the little farmers of the old school, that are still a numerous race amongst the more enlightened of their brethren.

known men incapacitated for work, and laid up for days together in harvest time, through the injurious operation of this noxious weed, not one whom I have talked with on the subject but spoke feelingly of the annoyance, often from his own painful experience. To myself the odour of the bruised flower-heads is not unpleasant, nor, although when chewed these last have a biting acrimony of brief duration, am I sensible of any vesicating property on protracted handling of the fresh plant or its seed, whilst others have experienced the usual bad effects in a short time. I apprehend that long continued contact with a moist and heated surface is required to produce such a result with the generality of persons. A common and introduced weed in most parts of North America to which colonization has extended, where, however, it is by no means so troublesome and hurtful an intruder as with us. I have picked it on the Mississippi as far south as Natchez and New Orleans.

Anthemis nobilis. On heaths, commons, and dry pastures, in very many parts of the Isle of Wight, and often in great plenty. At Springfield, near Ryde, and on St. Helen's Green. In a deep hollow by the road-side near the north end of Sandown village, very fine and plentiful. On Lake and Blackpan Commons abundantly. Very luxuriant on sandy banks at the foot of Bleak Down, and on earthen fences near the pond by the road to Chale and Niton. Abundant on the open, heathy parts of Bordwood. On Rookley Moors, and in pastures by the Wilderness in plenty. Very exuberant on Kennerley Heath, between Rookley and Bohemia. On Colwell, Apse and Royal Heaths, &c. Quite a frequent species in most quarters of the island, and perhaps not less so in the county generally. Near Ly-mington; Dr. Maton in Bot. Guide. Fareham Common, Peel Common in profusion; Mr. W. L. Notcutt. Droxford Forest; Rev. E. M. Sladen. On Southampton Common, if I mistake not, but the chamomile is so generally dispersed over the Channel district, that I have neglected taking notes of its special localities. On our short, open pastures the plant is quite depressed, and might escape observation, did not the heedless passer-by force its fragrance from the sod at every step, but on heaths and banks it is very luxuriant, growing in large, decumbent tufts, and even at times quite erect. I found it July 31st, 1844, sparingly on the moors near Rookley Wilderness as very small plants, each bearing a solitary, globose head of perfectly full or double flowers, as we see it in gardens, in which the aroma is weaker than in the single and wild state of this valuable and popular tonic.

Achillea Ptarmica. In woods, meadows, pastures, on heaths and by road-sides; a decidedly rare plant in the Isle of Wight. In and about Parkhurst Forest, by the road-side from Newport to Yarmouth, &c., very plentifully. Between Yarmouth and Ningwood, nearly opposite Cranmore farm. Road-side between Wootton and Newport, a little beyond the bridge across the road, but not plentiful. Alvington Manor land and Smallgains Heath; Mr. G. Kirkpatrick !! About the Depot Hospital (Parkhurst Barracks); Mr. W. D. Snooke, and in a few other places. Probably less unfrequent in mainland Hants. In plenty by the side of the London and Portsmouth road, between the 8th and 10th milestones, on this side of Petersfield, August, 1848. Millis's Bottom and Titchfield River; Mr. W. L. Notcutt. Serjeant's Meadow, Warnford, and Droxford Forest; Rev. E. M. Sladen. The bruised flower-heads have a pungent, aromatic scent, though the rest of the herb is nearly inodorous. The ray is deflexed at night, or when the plant is gathered, as in *Anthemis*.

Achillea Millefolium. In meadows, pastures, on hedge-banks, by road-sides and borders of fields, everywhere very common. Var. β . Heads of flowers rose-colour, or deep red; occasionally. Shore near E. Cowes Castle. N. B.—*Diotis maritima* (*Santolina maritima*) is stated by Mr. W. D. Snooke* to grow on the shore at Sconce Tower, a little west of Yarmouth. There is certainly no trace of it there now, and from the unlikelihood of the station (on wet, slipped clay) to produce a plant of the loose, sandy, or pebbly beach, I may safely assume an error on the part of the recorder, unless the constituents of the beach at that time (1823) were very different from what they are at this, when the sea is making daily inroads on the soft banks, and reducing them to a magma of slime and mud along the line of high water.

Chrysanthemum Leucanthemum. An abundant and often very troublesome weed in dry fields and pastures, which are sometimes rendered quite white with it in the earlier part of summer. Called Bozzum in this island. Naturalized from Europe to an equally

* Author of a little anonymous work of 35 pages, entitled 'Flora Vectiana,' Lond. 1823, sm. 8vo., being a Catalogue of about 300 of the (mostly) less common plants of the Isle of Wight, arranged according to the Linnæan system, the stations partly original and partly selected from Withering's Flora and Turner and Dillwyn's 'Botanist's Guide.' To this list, originally drawn up for Sheridan's 'Guide to the Isle of Wight,' I am indebted, so far as it goes, for the compiler's own observed localities, which, with a few exceptions, I have verified, and when of sufficient interest have quoted under the author's name in these Notes.

injurious extent in the United States, where I have traced it from Boston as far south as Savannah (lat. 32°).

Chrysanthemum segetum. In cultivated fields, amongst corn, turnips and other crops, not uncommon, and sometimes in great profusion in the Isle of Wight, but chiefly confined to the sandy districts, and hence more frequent in West than in East Medina. About Sandown, Shanklin, Godshell, Chale, Rookley, Niton and many other places. Probably not rare in the county, although I find no notes made of its occurrence excepting at Short Heath, near Selborne, where it is plentiful in the loose sandy soil. Sometimes called here Yellow Bozzum, more commonly by its general name of Corn Marigold. A showy nuisance, more particularly infesting barley and turnips with us than other crops. Winter wheat at least (and this is the only kind grown here) seems in general free from its contamination.

†*Pyrethrum Parthenium*. In waste or rubbishy places, on banks, wall tops, along hedges and road-sides, chiefly in the vicinity of habitations; not uncommon in the county and island, but scarcely I think truly indigenous. About Ryde, Cowes, &c. Plentiful on sandy banks at Oakhanger, near Selborne, about Petersfield, &c., frequent. Called Whitewort in this island, and an inmate of almost every cottager's garden.

———— *inodorum*. In fields, pastures, waste places, by waysides, &c., plentiful everywhere; a rather troublesome weed in tillage lands that are somewhat moist in the latter part of summer, amongst turnips, potatoes and other root crops. Var. *β. maritimum* (P. maritimum, Sm.). Common on banks and rocks along the shores of the Isle of Wight. At Sandown, Luccombe, Ventnor. Shore at Egypt, West Cowes, &c., in abundance. Not distinguishable by any mark that I can perceive from the last, except in such trifling deviations of structure as may reasonably be attributed to the influence of the sea air.

Matricaria Chamomilla. In waste places, corn-fields and by waysides; apparently a local, if not a rare plant in Hants, and which, though common along the coast immediately opposite, I have never succeeded in finding in the Isle of Wight. In several parts of Hayling Island, at South Hayling, &c., but not abundantly. Portsea Island. Pretty plentiful along the road from Cosham to Havant, about Drayton and onward to Farlington, where it is very common around the water-works and in the lane leading to them, also on the line of the Southern Counties Railway from Havant to the Fareham Junction. At Wymmering, along the road-side near the turnpike, and at Por-

chester. Border of a field at Norton, near Selborne, September, 1848. Southampton, in a corn-field; Mr. Borrer!! Wicor Hard, near Fareham; Mr. W. L. Notcutt!!! Droxford Forest; Rev. E. M. Sladen. Probably often overlooked from its strong general resemblance to *Anthemis Cotula* and *Pyrethrum inodorum*, but the mostly smaller flowers than those of either of these species, with the pleasant smell of apple or quince, which is very characteristic of the *Matricaria*, and from whence it got its specific name, will serve to distinguish it, especially from the nearly scentless *Pyrethrum*. The very conical disk is a character which attracts attention readily to the *Matricaria*, but in an early stage of inflorescence this is not always obvious, or at least not more so than in *Anthemis Cotula*, the disk in which is sometimes considerably prominent, though never perhaps so acutely conical as in the other. The leaves of the *Matricaria* are in general more finely divided or with the segments capillary, but these are liable to vary much in breadth in all the three species; so that the peculiar sweet smell of the heads of flowers, and the absence of pales on the receptacle, are the only sure marks by which the wild chamomile can, under all circumstances, be distinguished from its two allies. The total absence of this plant in the Isle of Wight, whilst so frequent in those of Portsea and Hayling and along the eastern coast of mainland Hants, is one of those curious problems in the geographical distribution of vegetables, which baffle explanation in our present utter ignorance of the laws by which that distribution is governed.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
January, 1842.

[To be continued].

Note on the flowering time of Mentha sylvestris.

By W. A. BROMFIELD, M.D., F.L.S.

YOUR correspondent, Mr. Lawson, wishing to be informed of the flowering time of *Mentha sylvestris*, and to know if the plant remains barren for a season, I am happy to answer his inquiry as far as I am able, from personal observation of the species at Selborne, in September last. At that sweet secluded spot, amongst the loveliest of England's lovely villages, and hallowed above them all in the hearts of British naturalists, such as read nature, not in books and closets, but in her own fair pages, the fresh and fragrant fields, *Mentha sylvestris*

grows in very great abundance in a damp meadow below the church, on the north side, and in a wet thicket to the eastward, at the opening of the valley leading to the Priory, in which third and last station it occurs in plenty in marshy soil adjoining the stream. When I saw it on or about the 16th of September, the greater portion of the plants in the second and last localities had flowered freely, but scarcely any specimens were left in that state, the flowers being for the most part quite over, so that I did not think it worth while collecting examples for the herbarium. In the first station below the church, but a comparatively small part of the entire number of plants appeared to have flowered that year, the few that had done so being likewise out or all but out of flower, and of these the leaves were in all three habitats rusty and eroded as if about to perish, their functions being no longer required, whilst those of the more numerous barren stems were uniformly fresh, entire and vigorous, and evidently destined to survive the winter, green as then. This species being perennial, the young plants, whether seedlings, or offsets from the creeping rhizoma of old ones, would of course not flower the first season, but whether these numerous barren stems were not of an age to flower, or were fated to remain unfruitful from other causes, I am not prepared to say. The great preponderance of barren over flowering specimens in the meadow beneath the church, inclines me to suppose that many of the plants never flower at all; but that the whole of the apparently barren stems should remain permanently in that condition, seems to me improbable. I apprehend that *Mentha sylvestris*, like many other plants of its order, has a great tendency to exhaust itself in root, and that whilst in some of its stations it may be induced to flower freely, in others, circumstances rather favour its propagation by the creeping rhizoma. *M. sylvestris* is given as a native of the Isle of Wight in the old 'Botanist's Guide,' on the authority of Mr. S. Woods, but I have never met with it here myself during nearly twelve years botanical acquaintance with all parts of the island, nor is it by any means a common species in England. *M. rotundifolia*, on the contrary, abounds in some of the districts of this island, and exhibits the same variable and capricious tendencies to barrenness and fertility as *M. sylvestris*, to which it is so intimately allied as almost to induce a suspicion, when the polymorphous nature of the genus is considered, that they may be states of one and the same species. I should say, for the same reason as that advanced in a late number of this journal, that the non-production of flowers and seed does not militate very conclusively against the claim of *M. sylvestris* to be held native to

Forfarshire; the circumstance of its being confined to the road-side, and not found on the undisturbed virgin soil around, would tend more to shake my confidence as to its indigenous origin than the mere fact of its sterility.

W. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
January 2, 1849.

A few days in Canlochen Glen, &c. By JAMES BACKHOUSE, Junr., Esq.

8th Month, 1848. — Leaving our conveyance near the head of the pass between Braemar and the Spital of Glen Shee, my father and I followed the course of a streamlet that gurgled down from the hills amongst loose fragments of serpentine rock, interspersed here and there with glittering atoms of mica.

The rugged mountains that cluster round the head of the pass, were alternately enlivened and cast into deep shadow by incessant fluctuations of cloud and sunshine, and large patches of snow still remained on the southern slopes of Cairngorum and Ben-na-mac-dhui, which overhung the distant valley of the Dee.

Knowing that we were on the border of the richest botanical district in Britain, many parts of which had never been explored, we felt sure that rarities new to *us* at least, in their native localities, would quickly greet us, and the yellow cushions of *Saxifraga aizoides*, with *Alchemilla alpina* and many other old acquaintances, foretold treasures beyond, in store for the diligent and careful searcher.

Patches of *Sibbaldia procumbens*, and solitary plants of *Epilobium alpinum*, soon studded the margin of the streamlet, and a little higher *Veronica alpina*, *Carex rupestris*, and *Juncus trifidus* mingled with them. A few steps more gave *Juncus biglumis*, *Luzula arcuata*, *Gnaphalium supinum*, *Epilobium alsinifolium*, *Carex capillaris*, *C. rigida*, *Spergula saginoides*, *Juncus triglumis*, and *Luzula spicata*. Soon we reached some low rocks, the crevices of which were filled with *Polystichum Lonchitis*, in every stage of growth. Bogs on the table land beneath the Glass-Mhiel mountain produced *Carex rariflora* in abundance, with *Juncus biglumis* and the newly described *Carex Personii* sparingly.

On the summit of the Glass Mhiel, at an elevation of nearly 4000 feet, *Salix herbacea*, *Luzula spicata* and *Carex rigida* formed the entire herbage.

From the north-eastern side we descended into the alpine glen of Canlochen, which runs into the head of Glen Isla, one of the highest valleys of the Clova district.

Canlochen Glen is hemmed in on each side by dark precipices, while larch forests clothe its lower slopes, affording shelter for hundreds of red deer that roam at large over the vale and surrounding heights. The bogs and streamlets above the glen produced *Phleum commutatum*, *Alopecurus alpinus*, *Carex aquatilis*, and in one place (far above where snow usually lies unmelted from year to year) a species of *Eriophorum*, apparently different from *E. vaginatum*, having *short*, thick, and highly polished stems, round below and bluntly triangular above, with very large spherical or almost flattened heads: it differs from the *E. Scheuchzeri* of continental authors in having a differently formed nut, and leaves rough towards the point, but is probably the plant found by Don on Ben Lawers, which he called *capitatum*.

We returned to the Spital of Glen Shee over a high precipitous mountain, covered with acres of tumbled quartzose rocks, which forms the southern abutment of the Glass Mhiel.

The next morning saw us toiling once more up the steep western ridge of this mountain, buried in clouds and enduring all the pleasures of a highland shower. From the top we steered by compass into the head of Canlochen Glen, and commenced a careful search of the great precipice at the south-western head.

In many places the rocks were covered with *Dryas octopetala*, *Vaccinium uliginosum*, *Salix reticulata*, and *Arctostaphylos uva-ursi*, accompanied by a profusion of *Saxifraga oppositifolia*, which trailed upon the ledges in all directions, sometimes intermixed with large tufts of *Silene acaulis*. It was a delightful place for a botanist; and as we crept cautiously along the ledges under the towering cliffs, fresh rarities delighted our eyes at every few yards. *Potentilla alpestris*, *Saxifraga nivalis*, *Cerastium alpinum*, *Hieracium diaphanum*, *H. Halleri* (in curious and varying forms), with the distinct *H. nigrescens* and *H. alpinum*, conspicuously adorned the sombre rock, contrasting their blossoms with the purple *Erigeron alpinus* and *Saussurea alpina*. Here and there fine tufts of *Carex atrata* waved in the wind, and *Poa alpina*, *montana*, and *cæsia* grew under the shelter of wet rocks. The exquisite little *Veronica saxatilis* occasionally showed its brilliant flowers, and *Gentiana nivalis*, sometimes almost microscopic, and sometimes 6 or 7 inches high, was sufficiently abundant to make us believe that we were the first botanical visitors at its lonely

dwelling-place in 1848. *Veronica alpina* and a variety of *V. officinalis* margined some of the rills, and enormous tufts of *Polystichum Lonchitis* with fronds 18 inches long added to the interesting assemblage. In climbing from ledge to ledge on the face of the crag, near a basaltic gorge we found a *Gnaphalium* of very unusual appearance, differing from *G. sylvaticum* (to the mountain form of which it approaches nearest) in having few long-stalked *obovate-lanceolate* leaves scattered on the stem, and spreading off at *right angles*, and a *short*, closely aggregated, abrupt spike, with linear spreading bracteas. The plants were from 6 to 8 inches high, and seemed luxuriant and unlike the starved form of *G. sylvaticum* which is not uncommon at a lower elevation, and has ascending *linear* or linear-lanceolate leaves clothing the stem from the base. The heads of *sylvaticum* moreover are more elongated and spiked, and the florets are rather shorter in proportion to the involucre scales. Our plant is probably *G. norvegicum*, which is considered specifically distinct from *G. sylvaticum*.

Juncus castaneus was abundant in the streamlet that falls into this gorge close to the edge of the precipice, and a few scattered plants grew in a bog many hundred feet below.

In returning we re-ascended the shoulder of the Glass Mhiel, and had again to steer our way amid the cloud, safely reaching the head of the pass just as the shades of evening closed around us.

Refreshed by a night's rest we crossed the moors to the head of Glen Callater, finding *Salix lanata*, *Cornus suecica*, and *Trientalis europæa*.

The comfortable inn at Braemar was our lodging-place that night, and on the following morning we started at an early hour for Loch-nagar, passing through the forests on the south side of the Dee. It was a lovely day, and the three tranquil tarns under the west cliffs of the mountain brilliantly reflected the blue sky above them, while the clearness of the distant landscape and general serenity foretold nothing of coming storms. On the ascent we gathered *Lycopodium annotinum*, *Pinus sylvestris* from its native woods, *Betula nana*, and *Azalea procumbens*. Our tract was up a steep, narrow ravine partially filled with snow, which (though condensed so as to resemble ice) still measured 4 feet in thickness. We cut niches for our feet, and so scrambled up its steep edge, careful to avoid a slip into the cavernous recesses underneath, which were quite large enough to hold us! On the top of the mountain we saw many of the plants noticed in the preceding excursions, and after surveying the 1200-foot precipice on the north-eastern side, followed a stream which (in four miles) led us

down to the edge of Loch Muick, near a fine waterfall. After scrambling along the side of the lake, dark threatening clouds gathering around the mountain tops, and obliterating them from the view, one by one, in rapid succession, gave us warning to ascend without loss of time, and recalled to mind an unusual atmospheric appearance in the horizon, that had claimed our notice from the top of Lochnagar.

We were soon enveloped, and had to steer our way amid the cloud along the mountain, almost exhausted by the violence of the wind and cold. Less than two hours were left to reach the foot of Loch Callater before nightfall, and our route was over mountains previously untrodden by us.

This point was gained just as daylight vanished, the glimmering reflection of the water barely sufficing to point out the rough foot-track leading to the gamekeeper's cottage at the foot of the lake. After $14\frac{1}{2}$ hours of almost incessant walking we arrived there in time to learn that the conveyance appointed to meet us had left about 10 minutes, its driver considering the case hopeless.

The storm had now increased in fury, and rain began to pour down in torrents, making the idea of another turn out anything but delectable. Knowing, however, that our companion who had gone before us to Braemar would be anxious, we ventured forth after regaling on oat cake and milk, having more than 5 miles to go, besides the necessity of wading through a rapid river in the dark.

The storm continued unabated all the way, and when safely lodged at Braemar we could still hear its raging, and feel thankful for our shelter. More than 100 seamen were lost that night on the east coast of Scotland.

JAMES BACKHOUSE, JUNR.

THE DUNDEE NATURALISTS' ASSOCIATION.

December 5, 1848.—The President in the chair.

A paper was read from Mr. Geo. Lawson (Edinburgh), being an account of a visit to Arniston Woods, near Edinburgh, in which some interesting plants were noticed as having been gathered, such as *Hookeria lucens*, *Bryum ligulatum*, *B. punctatum*, *Dicranum bryoides*, *Peziza coccinea*, &c.

A note from Mr. Wm. Anderson was read, recording a new station for *Saponaria officinalis* in Forfarshire; viz., "North side of the

South Esk, about a quarter of a mile above the service bridge at Brechin Castle, on the top of a sunk fence, abundantly, and where it has been known to grow for the last 10 years. Probably introduced."

A note was also read from Mr. Geo. Lawson on the occurrence of *Specularia hybrida* in Fifeshire.

Mr. James Wyllie read a paper on the common barn-door hen assuming the plumage of the male.

A specimen, with fertile flower, of the *Udora canadensis* was exhibited from Mr. Geo. Lawson, who had received it from Miss Kirby, of Leicester.

A donation to the Library was announced from Mr. Geo. Lawson.

Plants had been received from Mr. Wm. Anderson, Mr. James Wyllie, D. E. Smith, Esq., and Geo. Lawson, Esq.

Charles Roger, Esq., of Dundee, and D. E. Smith, Esq., of Edinburgh, were elected members.—*W. M. O.*

Naturalization of Petasites albus near Huddersfield.

By PETER INCHBALD, Esq.

A LARGE patch of this early-flowering plant occurs in an oak wood north of the hall. It is growing in a damp stony hollow, and covers many yards with its strong penetrating roots, which creep above ground among the stones in every direction. Reichenbach states, in his 'Flora Germanica,' that this species occurs on the continent in woody mountainous tracts, and gives April and May as its time of flowering. With us it flowers in February and March, and is nearly over by the middle of April.

PETER INCHBALD.

Storthes Hall, near Huddersfield,
December, 1848.

Record of the rarer Plants occurring in the Neighbourhood of Adwick, four miles north of Doncaster. By PETER INCHBALD, Esq.

DONCASTER is pleasantly situated in the south of Yorkshire, not many miles from the borders of Nottinghamshire. It is in the very midst of the magnesian limestone, which thence trends northwards in a direct line to the banks of the Tees. The Flora of Adwick, a vil-

lage about four miles north of Doncaster, may be taken as generally characteristic of the vegetation of the limestone formation; and as I have devoted some years to a diligent canvas of that neighbourhood, I have pleasure in submitting the more interesting of my floral discoveries to the notice of the readers of the 'Phytologist.'

Ranunculaceæ. The alluvial meadows near Askern offer plants of *Thalictrum minus*. *Ranunculus Lingua* occurs in plenty in the boggy parts of Sutton Common. It flowers very shyly. *Helleborus viridis* abounds within the moat at Hangthwaite, covering a large space, and flowering very early in the year. *Aquilegia vulgaris* raises its clusters of beautiful blue flowers in the woods.

Cruciferae. *Cardamine amara* grows beside the beck at Adwick. The pink anthers of its flowers contrast pleasingly with the pale delicate hue of the petals.

Violaceæ. *Viola hirta*, which occurs solely in chalk districts, usually flowers a few days earlier or later than the sweet violet, with which it grows interspersed.

Caryophylleæ. *Cerastium arvense*, a true limestone plant, is widely scattered throughout the neighbourhood. *Stellaria glauca*, whose foliage accords well with the specific appellation, occurs occasionally in ditches choked up with herbage.

Saxifrageæ. The boggy pastures at Askern are rendered gay in the late autumn months by the white blossoms of *Parnassia palustris*. *Saxifraga tridactylites* is widely dispersed, covering old walls and misshapen masses of stone.

Leguminosæ. The Roman Ridge, a remnant of the old northern road to Eboracum, offers many good plants. Among them I may notice in this tribe *Astragalus hypoglottis* and *A. glycyphyllos*, both occurring in considerable plenty. *Trifolium fragiferum*, so remarkable when in fruit for its curiously inflated calyces, is met with in wet pastures, on black boggy soil.

Rosaceæ. *Potentilla verna* grows on the old limestone crags at Smeaton. Those certain indicators of a limestone soil, *Sanguisorba officinalis* and *Poterium Sanguisorba*, are everywhere abundant. The leaves of the latter, when steeped in vinegar, give to it the flavour of cucumber. *Rosa villosa* I have occasionally noticed. *Geum rivale* I once gathered at Owston, a village far famed for its excellent cream-cheeses.

Umbelliferae. The limestone soil is well adapted to this tribe: among others I may notice *Pastinaca sativa*, *Bupleurum rotundifolium*, *Pimpinella magna* and *P. Saxifraga*, and *Sison Amomum*.

Stellatæ. Dry limestone banks yield in profusion the *Asperula cynanchica*. The flowers vary from white to lilac, the segments of the corolla being veined longitudinally with deep pink.

Campanulaceæ. *Campanula glomerata* is abundant at the Roman Ridge, white varieties occasionally growing interspersed with plants of the ordinary colour. *C. patula* is said to grow near Doncaster, but I have never yet been fortunate enough to meet with it.

Compositæ. Noble plants of *Inula Conyza* are plentiful at the Ridge. *I. Helenium* once grew near Adwick: I have seen plants of this rare British flower in cultivation at Doncaster, that were originally growing wild in the neighbourhood. *Erigeron acre* and *Carlina vulgaris* occur likewise at the Ridge. *Filago apiculata* deserves especial notice, as being but recently added to our Flora. It was first discovered, I believe, by the Rev. G. E. Smith, at Cantley; and it really appears to have very good claims to specific distinction, loath though some of our best botanists may be to allow it. I would recommend all those who feel interested in the genus *Filago* to read Mr. Watson's admirable paper on the subject in the October number of the 'Phytologist' (Phytol. iii. 313).

Gentianæ. *Gentiana amarella*, as variable in size as in the number of its flowers, is everywhere abundant on dry uplands. *Chlora perfoliata* is far less frequent, usually preferring more hilly localities than the autumnal gentian.

Solanæ. Several habitats are recorded near Doncaster for *Atropa belladonna*. Both this plant and its poisonous ally, *Hyoscyamus niger*, are singularly frequent in church-yards, the latter not unfrequently making its appearance on mould that has been thrown up in forming vaults.

Primulaceæ. Many beautiful plants of this tribe are met with in the district. *Hottonia palustris*, that ornament to stagnant waters, covers the ditches with its leaves and whorls of pretty pink flowers. *Anagallis cærulea* and *A. tenella* are not unfrequent. *Lysimachia vulgaris* I have gathered from one or two localities. The curious *Samolus Valerandi* may occasionally be observed in damp watery places. *Primula elatior* occurs in the woods near Doncaster, with some scapes bearing umbellate, and others solitary flowers; thus showing its close affinity to the *P. vulgaris*.

Scrophularinæ. *Veronica triphyllos* is found in sandy places at Cantley. It grows near York in similar situations.

Orobanchæ. *Lathræa squamaria*, one of our few epiphytes, may be found in Hampole Wood towards the close of April. It is usually parasitical on the roots of the hazel and ash.

Labiatae. *Mentha piperita* and *M. rotundifolia*. *Leonurus cardiaca*, a rare plant, is not unfrequent near Doncaster. The same may be said of *Ballota nigra*, which, though generally diffused throughout the vale of York, is rare in the higher parts of the county. It occurs with white flowers near Doncaster. *Nepeta Cataria* and *Origanum vulgare* may occasionally be noticed on bushy hedge-banks.

Thymeleae. *Daphne Laureola* occurs in the wildest profusion in the hedges near Brodsworth, far from any trace of garden cultivation. Its early flowering and delightful fragrance render it a general favourite. Exotic species of *Daphne* thrive well when grafted on our wild stocks.

Euphorbiaceae. *Euphorbia platyphyllos* I have met with on arable land, where it has no doubt been introduced with seed-corn.

Aroideae. In the ditches at Askern, *Sparganium simplex* is as common as *S. ramosum*.

Alismaceae. *Alisma ranunculoides* and *Sagittaria sagittifolia*. The bulb which grows at the lower part of the root of the latter plant is said to constitute a part of the food of the Chinese.

Hydrocharideae. *Stratiotes aloides*, which occurs chiefly in the east of England, is common in the fens near Doncaster. The structure and economy of this plant are exceedingly curious.

Orchideae. The Roman Ridge is richly productive of our representatives of this singular tribe of plants. *Orchis ustulata*, *O. pyramidalis*, *Gymnadenia conopsea*, *Habenaria bifolia*, *Ophrys apifera*, *O. muscifera*, *Spiranthes autumnalis*, *Neottia Nidus-avis* all occur within a very limited range.

Amaryllideae. *Narcissus biflorus*, a doubtful native, grows and flowers abundantly in a grass-field not far from the village of Adwick. Its ally, *N. pseudo-narcissus*, known in Devonshire by the name of the Lent lily, is exceedingly plentiful in Hampole Wood, covering hundreds of yards with its simple yellow bells.

Asparageae. The woods around Doncaster abound with *Convallaria majalis*, which flowers much more freely in its wild state than when in cultivation. *Paris quadrifolia*, not unfrequently belying its specific name by presenting whorls of 2, 3, 5, 6, 7, and 8 leaves, is very common throughout the greatest part of the county.

Liliaceae. *Ornithogalum umbellatum* grows in several patches in a pasture between Adwick and Pigburn, and flowers well. The locality in which it occurs does not exhibit the slightest trace of garden cultivation.

Cyperaceae. Noble plants of the rare *Cladium Mariscus* grow in the fens at Askern. Babington says of this interesting plant "rare

except in Cambridgeshire." It flourishes here in some plenty, interspersed with *Scirpus Tabernæmontani*, and that most beautiful of the Carices, *C. pseudo-Cyperus*. The other less common Carices that this small watering-place affords to the botanist are *C. pulicaris*, *C. teretiuscula*, and *C. intermedia*. The rare *C. digitata* was noticed at Roche Abbey by the Rev. G. E. Smith:

Gramineæ. Among the Gramineæ I may record *Glyceria aquatica*, with stems full six feet high, *Poa rigida*, and *Brachypodium pinnatum*, on dry limestone soil.

Filices. The local *Lastræa Thelypteris* occurs in the fens at As-kern with fronds above two feet long. The soil is exactly such as Mr. Newman observes to be suited to the growth of this species, "moist and soft, so that the rhizoma can extend itself with rapidity and freedom."* *L. Oreopteris*, a fern, as its name would imply, of mountain heaths, occurs in Melton Wood, and fruits in this situation abundantly, the frond rising to the height of above two feet, and emitting, when bruised, a fine aromatic odour from the resinous globules which dot its under surface. *Polystichum angulare* grows in plenty on Edlington Crags.

PETER INCHBALD.

Storthes Hall, near Huddersfield,
January, 1849.

Adiantum Capillus-Veneris not found in Derbyshire.

By JAMES BACKHOUSE, JUNR., Esq.

I HAVE seen Henry Ecroyd Smith's specimens of [so called] *Adiantum Capillus-Veneris*, recorded (Phytol. iii. 11) as growing on the Peak of Derbyshire, and I can certainly say that they have no claim whatever to be classed under the genus *Adiantum*, being evidently seedling forms of *Asplenium Trichomanes*, with the leaflets more attenuated and rather more incised than usual; probably from having grown in a moist, shady place, or amongst thick vegetation. H. E. Smith is, I believe, quite satisfied on this point now. In this state there is a strong resemblance in the leaflets to those of *A. Capillus-Veneris*.

JAMES BACKHOUSE, JUNR.

York, February 1, 1849.

* 'British Ferns,' 183.

Notice of the 'London Journal of Botany,' Nos. 83 and 84, for December, 1848.

WE had brought up our customary notices of this periodical to No. 82, published in October. None was published in the succeeding month, but a double Number, or two in one, came out some time in December; and with this double issue the work becomes extinct in name, though not in reality. In order to complete our notices of the extinguished periodical, a list of the contents of these two final Nos. is subjoined:

Nos. 83, 84. *Original Papers*: *Ficuum Species Nigritianæ*; by F. A. W. Miquel. Note on *Anemia Seemanni*; on *Ranunculus Javanicus*; of a new species of *Pentagonia*; all three by the Editor. Note on the genus *Benjaminia*; by G. Bentham. Account of a new British Saxifrage; by W. H. Harvey. *Decades of Fungi*; by M. J. Berkeley. Enumeration of *Leguminosæ*; by G. Bentham. Description of a new *Sonerilla*; by the Editor. *Botanical Information*: Dr. Thomson's Botanical Mission to Thibet.

In this list of 'Contents' the title most likely to attract the attention of British phytologists, is the account of a new British Saxifrage. In conformity with a custom so inconvenient for readers of a periodical, the plate which represented the new Saxifrage was given in the Number of the Journal for October, while the descriptive letterpress was reserved for December. The new species belongs to the group of *S. umbrosa* and *Geum* by general habit, but differs remarkably enough in the character of its flowers; so much so, indeed, that by botanists fond of minute generic distinctions it might be referred to a different genus from *S. umbrosa*, although it may eventually prove to be only a monstrous or abnormal form of that same polymorphous species. "In the *umbrosa* group," observes Dr. Harvey, "the calyx is parted to the base, the sepals are perfectly free from the ovary, and are strongly reflexed soon after the expansion of the flower. In our new species the calyx is gamosepalous, cleft two-thirds of its length, the tubercular [tubular?] portion adheres to the base of the ovary, and the limb, instead of being reflexed, is simply spreading. Add to this, that the petals are much broader and more elliptical than in any of the group, and are elegantly dotted over the whole surface, and we have characters sufficient, I should hope, to mark a species even among a set so proverbially undefinable."

Unfortunately, this new species of Saxifrage has been seen in

flower only in a garden, to which the wild root, in its flowerless state, had been removed by Mr. Andrews, whose name it appropriately bears, not only as that of the discoverer of this particular species or variety, but as that of a botanist who has devoted more attention to the Saxifrages of Ireland, and acquired a more exact and familiar acquaintance with their proteiform characters, than can be claimed by any other of Her Majesty's subjects. The discovery of this remarkable example was curious, and merits quotation in the words of Mr. Andrews, as a good illustration of the advantage which may result from exact observation of varieties, or what appear to be such.

"With regard to my Saxifrage," writes Mr. Andrews, "I have but little to say beyond the following. Professor Allman, on the 25th of June, 1845, read a paper at one of the sectional meetings of the British Association, held at Cambridge, conveying my views of the Robertsonian Saxifrages. In the views (which were altogether in opposition to those advanced by Mr. Babington, and published by him in the 'Annals of Natural History' for June, 1844) I stated, as my opinion, that all the forms of *Geum* and *umbrosa* of Ireland, were identical with those of the Pyrenees, and that forms of leaves of *Geum*, equally as obtusely crenate as those of the Pyrenees, were met with in Kerry. Further, that all these forms passed so completely into each other, that neither *hirsuta*, *elegans*, nor *serratifolia* had any pretension to specific difference. This view of the subject has since been confirmed by Mr. Spruce, as noted in the 'London Journal of Botany' for July, 1846; but Mr. Babington has not yet found time to correct any of the statements in the journal where they have been so positively asserted by him. To strengthen still further my points, I assiduously, in September, 1845, collected in my rambles in Kerry, every form of leaf of *Geum* and *umbrosa* that I could meet with, and among them found the very remarkable form of leaf of the plant that you have so kindly undertaken to draw and describe. The specimens of this last were collected, growing on moist cliffs of a mountain at the extreme termination of Glen Caragh, either Cluan or Claraby, I am not certain which. They were not in flower at the time of gathering. I removed roots to my garden, where they did not produce flowers till this season (June, 1848), when the more remarkable characters were apparent."

The individual writer of this notice can fully confirm the statements of Mr. Andrews, in respect to the very variable forms and serratures of the leaves of the Robertsonian Saxifrages of Ireland; as well as their general identity, in these respects, with examples of the same

species from the Pyrenees; having examined a numerous series of specimens from the latter habitat, and also a large number collected in Ireland by Mr. Andrews; besides raising some hundreds of them in his own garden, from seeds kindly sent to him by that gentleman. Mr. Babington's acuteness and accuracy of observation, as a botanist, are thoroughly established; and he could well afford to acknowledge a mistake which arose only from trusting to the characters of an insufficient series of specimens; but which really assumes a much more unfavourable aspect, through being allowed to remain uncorrected, while there is assuredly a scientific, if not a moral, obligation upon him to make the correction of an error which he has been the means of widely diffusing, however unintentionally and accidentally.

We mentioned above, that the 'London Journal of Botany' becomes extinct with the double Number now under notice. It is, however, continued in a smaller and lower-priced form, under title of 'Hooker's Journal of Botany and KEW GARDEN MISCELLANY.' The first division of this new title has been long in use orally, though not adopted in print, for the periodical conducted during many years by that distinguished botanist, under several successive names. The second portion of the title now adopted, being printed in larger type on the cover, is probably intended to be the name for current use. If so, we think it at once the selection and the mistake of the publisher, and that he would have found it a most unremunerative designation without the prefixed 'Journal of Botany.'

We refrain at present from making any list of contents, or expressing any opinion of the Journal in its changed form. It is decidedly an experiment in periodical literature, to bring out a journal so low in price, written by and for scientific botanists, who must be few in number, but we hope that all those few will give their support to the publishers, as subscribers at least. C.

*Errata in Mr. Steven's Notes on the Flora of Dumfriesshire,
Phytol. iii. 390.*

Page 390, and wherever it occurs, for *Loch Skew* read *Loch Skene*.

„ 391, for *Penpout* read *Penpont*.

„ 391, and wherever it occurs, for *Mare's-tail* read *Mare's Tail*.

„ 392, for *Darrisdere* read *Durrisdere*.

„ 393, for *Nynron* read *Tynron*.

Discovery of Simethis bicolor in Ireland. (Communicated by
HEWETT C. WATSON, Esq.)

PERHAPS the Editor of the 'Phytologist' will allow me to give additional circulation to an interesting fact, lately announced in the 'London Journal of Botany,' but likely to be overlooked by many botanists; since it is mentioned only incidentally in a paper on another subject, and has not found place in the Index of the volume in which it was announced. I allude to the discovery of *Simethis bicolor* in Ireland. According to Dr. Harvey, this plant, so lately first discovered in England, "has been found by Mr. Thaddeus O'Mahony, growing in a perfectly wild situation on hills near Derrynane Abbey, the seat of the O'Connells. The hills where this plant grows have probably never been turned up, and the plant has certainly never been cultivated in a neighbouring garden. A specimen agreeing in all respects with a Portuguese one in the University Herbarium, was sent to me in June last." ('London Journal of Botany,' vol. vii., p. 571).

HEWETT C. WATSON.

Thames Ditton, February 4, 1849.

Occurrence of Doronicum plantagineum at Shooter's Hill.

By GEORGE LUXFORD, Esq.

ABOUT the middle of May, 1848, while out on an excursion with my botanical class, I had the pleasure of finding *Doronicum plantagineum*, in considerable plenty and in full flower, in a wood at the back of Shooter's Hill, Kent.

From the high road to Dartford, at the top of the hill, and almost directly opposite the Bull Inn, a lane leads off to the right, through a wood, I believe West Wood; the plant was growing to the left of this lane among the trees, and in situations where intruders will probably be civilly informed by a keeper that they are trespassing on the private property of the Crown.

About a week afterwards a friend found the *Doronicum* growing plentifully in a wood nearer Chiselhurst. I do not know the exact locality.

GEO. LUXFORD.

East Temple Chambers, Fleet St.,

February 11, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, February 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced:—

British plants from Mr. Hewett Watson, Mr. A. Henfrey, Mr. G. Reece, Dr. Bidwell, Mr. F. J. A. Hort, the Rev. John Bigge, Mr. G. Francis, Mr. G. Maw, the Rev. W. R. Crotch, Mr. A. H. Balfour, Mr. G. Lawson, and Miss M. Beever. Foreign plants from Mr. G. Francis.

Jussieu's 'Elements of Botany,' translated by Mr. J. H. Wilson, F.L.S., presented by the translator. 'Journal of the Royal Agricultural Society of England,' presented by the Society. 'Journal of the Pharmaceutical Society,' presented by the Society. Nos. 1 and 2 of the 'Botanical Gazette,' edited by Mr. A. Henfrey, F.L.S., presented by the Editor. 'Materials for a Fauna and Flora of Swansea and the Neighbourhood,' by L. W. Dilwyn, Esq., F.R.S., presented by James Motley, Esq. 'Report of the Dublin University Museum' for 1848, presented by the University. 'The Agricultural Magazine,' presented by the Editor.

The Rev. Francis Dyson, of Tentworth, Marlborough, Mr. T. Clark, Junr., of Halesleigh, Bridgewater, Mr. W. B. Booth, A.L.S., of Carclew, Cornwall, Mr. W. J. Burke, of Kilbride, Wicklow, Mr. T. Kirk, of Coventry, Mr. J. T. Duthoit, and Mr. Hedger, of London, were elected members.

Several specimens from Mr. Hewett Watson, Mr. F. Barham, Mr. W. H. Purchas, and Mr. S. P. Woodward, in illustration of recently distinguished species, curious varieties, &c., were exhibited. Among them were examples of *Hieracium alpinum* with the scapes branched and leafy, showing a transition to the section of stem-producing species. Also a curious example of *Carex atrata*, in which the character and position of the flower-spikes were widely different from their ordinary condition, giving to the specimen a first-sight appearance similar to that of a very luxuriant *C. rigida*, the terminal spike being almost entirely male, and cylindrical; four inferior spikes of female flowers, with a few males interspersed, cylindrical or oblong, erect, and placed rather distantly one below another, the lowest about three inches beneath the terminal male spike. The specimen had grown in Mr. Watson's garden, on a root of *Carex atrata* brought from the Grampians a few years ago.—*G. E. D.*

Nephrodium fœniseeii of Lowe identical with *Lastræa recurva*.

By EDWARD NEWMAN.

MR. WATSON has obligingly forwarded me a suite of specimens of Lowe's *Nephrodium fœniseeii*, collected in Madeira, and has accompanied the specimens with a series of questions relating thereto, and drawn up with the view of fixing the prior specific name of *fœniseeii* on both the Madeiran and British plants.

I am now fully convinced that Mr. Lowe intended to describe the species subsequently characterized by Mr. Bree under the name *recurva*, and also that Mr. Lowe's *fœniseeii*, *β. productum*, is not a second species, but a very trivial variety in form only: under these circumstances it seems to me that we have no choice but to adopt the prior name.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
February, 1849.

Notice of a Paper on three supposed Species of Polystichum, by Professor Kunze.

WHATEVER is done by a botanist bearing so high a reputation for knowledge of European ferns as Professor Kunze must deserve the serious *consideration* of all lovers of truth. But more than this we are not prepared to admit: we are not prepared to say that any amount of reputation should insure the adoption of proposed species.

In the paper to which we allude* Professor Kunze describes at great length those forms of *Polystichum* which are usually known in this country as the "aculeatum set.:" he makes three species under the names of *lobatum*, *aculeatum* and *Braunii*. *Lobatum*, he informs us, = the *Aspidium lobatum* of Smith, 'Fl. Brit.' iii. 1123, and of 'English Botany,' 1563: *aculeatum* = the *Aspidium aculeatum* of Smith, 'Fl. Brit.' iii. 1120: and *Braunii* = the *Aspidium angulare* of Kitaibel (first described by Willdenow in the 'Species Plantarum,' v. 257) only in part. There is no point more preeminently a *questio vexata* among British botanists than the value of those differences which distinguish certain individual plants of the "aculeatum set"

* Flora, June, 1848.

from each other. The most extreme opinions are entertained: some asserting that these are *specific* differences; others saying they are indicative only of *variety*; others again maintaining that the discrepancies are those only of *individuals*. Again, we find some botanists contending that we have three species in this country: others that we have two; others that we have but one. Amid this conflict of opinion it is quite a privilege to find a pteridologist of Kunze's eminence devoting his talents to the subject. Would we could accept his solution as final, and thus terminate a discussion which has hitherto so little advantaged the study of the tribe. It is impossible to charge him with want of care, want of exactitude, want of terms wherewith to express his meaning, or want of knowledge of the labours of others. He describes with admirable precision three fronds, or perhaps plants, which he has before him: he trusts to his own observation alone, and each description bears indubitable evidence of fidelity and originality: with the fronds or plants before us, and we have seen many such, we could at once distinguish for which each description was intended; but when we carefully consider the differences pointed out; when we weigh them against the differences existing between ascertained species; we cannot avoid pausing before we assign them the importance of diagnostics for the separation of species. Let us examine the leading characters in the extreme species, lobatum and Braunii.

Lobatum has the frond *linear-lanceolate, shortly acuminate, very much attenuated at the base, coriaceous, rigid, sub-bipinnate*.

Braunii has the frond *lanceolate, shortly acuminate, very much but gradually attenuated at the base, membranaceous, rather flaccid, bipinnato-subpinnated or bipinnate*.

It will be observed that in lobatum the frond is 'linear-lanceolate' instead of 'lanceolate,' 'coriaceous and rigid' instead of 'membranaceous and somewhat flaccid.'

Passing over the pinnae, the descriptions of which might be transposed without its being detected, we have the pinnules described

In lobatum as *subsessile and decurrent*

In Braunii as *subsessile and adnate-decurrent*.

The sori are

In lobatum *small, flattish, ferruginous, brown, at length confluent*.

In Braunii they are of the *middle magnitude, convex, brown, at length contiguous, sub-confluent*.

The scales of the stipes

In lobatum are *large and brown, and intermixed with smaller piliform ones*

In *Braunii* some are large, pale, and lanceolate, intermixed with others smaller, hair-like, and of the same colour.

We have purposely made the differences described by the author as salient as possible, omitting the detail which offers little or nothing of a decided character. Before quitting the subject we would, however, remark, that both lobatum and *Braunii* have sessile and decurrent pinnules, while aculeatum, intervening between them, has the pinnules petiolate; thus the character on which we had most relied in this country for separating the extremes, appears to be held by our author as of no importance.

K.

Abstract of a Paper by Professor Edward Forbes on some Peloria Varieties of Viola canina. Extracted from the 'Proceedings of the Linnean Society,' xxxvi. 382.

THESE monstrosities were collected by Prof. Forbes in the Isle of Portland in the month of April. The plants in which they occurred were infested by the parasitic fungus figured in Sowerby's 'English Fungi' under the name of *Granularia Violæ*, and afforded not only many distortions of the foliaceous organs evidently due to the presence of the fungus, but also various monstrosities of the flower, of which the author gives a particular description illustrated by drawings.

These were found chiefly in the small variety of *Viola canina*, figured in the 'Supplement to English Botany' as *Viola flavicornis*. One of these plants had two two-spurred flowers exactly similar and deviating from the ordinary structure in the following particulars:—There were four sepals, all enlarged and diseased, the superior being smaller than the others, the two lateral equal but abnormally large, and the anterior largest and not quite regular. The petals were also four in number, the two uppermost being regular and the two lowermost spurred. Each of the former had the little tufts of hairs seen on the lateral petals in the normal flower, and were similarly pale at the base and lineated with purple, while the two spurred petals were smooth and lineated. Of the four stamens the three uppermost were normal, the fourth much enlarged; there were no antherine appendages, but at the bottom of each petal-spur there was a strong ridge not usually present and as if representing these appendages. From these appearances the author infers that in these instances the two superior petals were abortive, the tufts of hairs on the two remaining

superior petals showing that they correspond with the two lateral petals of the ordinary flower; and that the two spurred petals were developed in the place of the ordinary single anterior petal. He regards the enlarged anterior stamen as consisting of two, each making an unsuccessful effort to develop an appendage; and the enlarged anterior sepal also as made up of the union of the two ordinary lower sepals.

In the former case the floral envelopes were regulated by the number 4: Prof. Forbes proceeds to describe a still more remarkable case of *Peloria*, in which they were regulated by the number 3. The three sepals are of normal and equal dimensions and the three petals all spurred, and nearly but not quite equal, the odd one, which is inferior, having a larger spur than either of the other two. There is no tuft of hairs on any of the petals, but they are all lineated. The stamens are five, all furnished with appendages, the two lowermost of which, fully developed, penetrate the spur of the anterior petal, while the spur of the left upper petal receives the fully-developed appendage of one of the stamens, and that of the right also one fully-developed appendage, the appendage of the fifth stamen (small and only partially developed) bending back after proceeding only a little way. A little below the flower, between it and the true bractæ, which present their usual appearance, there is a whorl of five bract-like sepals, between two of which, and directly beneath the largest-spurred petal of the monstrous flower, is a single petal partially developed and exhibiting an abortive spur. "In this case," the author proceeds, "we have the outer whorl of floral envelopes developed, and an effort made towards the development of the second in the aborted basal petal; then the axis elongating and terminating in a flower in which two of the sepals are aborted and four of the petals, viz., the two lateral and two superior ones, for the absence of tufts of hairs prevents our regarding two of the three as the former, and the presence of lineated bases shows that they are not the latter. They are repetitions of the basal petal, which in this instance is multiplied by three, as in the cases before described it was multiplied by two." In this plant no traces of the fungus were observed.

Prof. Forbes cites the instances of *Peloria* among Violets recorded by Leers and DeCandolle, and refers to the view adopted by the latter and by M. Moquin-Tandon, viz., that the *Peloria* is caused by the tendency of all the petals to assume a spurred condition in consequence of a general effort as it were on the part of an irregular flower to become regular. He states that DeCandolle's figures are not suf-

ficient to enable him to judge if such was the case in the instances depicted by him, but maintains that the *Peloria* violets which form the subject of the present communication "owe their monstrous regularity to a very different phenomenon; viz., *the effort of an irregular flower to become regular by the multiplication and symmetricalization of its irregular parts.*"

Dates of the Flowering of British Plants.

By ISAIAH W. N. KEYS, Esq.

August 19, 1848. *Atriplex rosea* luxuriant on the embankment of the Laira, the embouchure of the river Plym, near Plymouth. Many plants in ripe fruit. Hooker, "Fl. Sept." The surface of the embankment just named is formed of slates vertically placed, between which the roots of the *Atriplex* descended to the depth in some instances of a foot or more. Remarked here the leaves of *Tussilago Farfara*. This is an additional instance (Phytol. iii. 307) of the variety of soil on which this plant grows. On the borders of the salt-water ditch adjoining this embankment, the *Sonchus arvensis* (mark, *arvensis*!) is colonized in a very rank condition. I have examined this plant repeatedly, and can make nothing else of it. Mr. Babington, to whom I have shown it, calls it by this name. I should be glad to learn whether any of your correspondents have elsewhere noticed a similar eccentricity in this plant. It certainly has gone far from its wonted abode in roving from the corn-field to the brink of a salt ditch. Within a few yards of it grow *Juncus lamprocarpus* and *J. conglomeratus*, *Carex divulsa*, "*et hoc genus omne.*"

August 21. No flowering-period for *Melissa officinalis* being mentioned in the 'Manual of Botany,' I may record having gathered it this day, near Alphington. As this plant is considered merely "naturalized," it may be interesting to mention that it grows near some cottages at Rame, Cornwall (about six miles from Plymouth); and that one of its habitats in this neighbourhood has been recently destroyed by the South Devon railway. *Lycopsis arvensis* in flower on the road-side, near Exminster. Hooker, "Fl. June, July." Babington, "6, 7." Also, *Chelidonium majus* in fl.: Hooker, "Fl. May, June." Babington is right: he says "5—8." *Epilobium hirsutum* in fl. Hooker, "Fl. July." Babington is right here also: "7, 8." *Myosotis caespitosa* in fl. Hooker, "Fl. May, June." Babington,

"6 to 8" (right). *Lycopus europæus* in fl. Hooker, "Fl. June, July." Babington, "7, 8" (right). It will be observed that all the plants mentioned under this day were in bloom beyond the periods prescribed in the 'British Flora,' 5th edition.

September 20. A friend gave me specimens of the following plants, gathered the day before: *Radiola Millegrana*. Hooker, "Fl. July, Aug." Babington, the same. *Sedum Telephium*. Hooker, "Fl. July." Babington, "7, 8." *Pinguicula lusitanica*. Hooker, "Fl. June, July." Babington, "7." *Drosera rotundifolia*. Hooker, "Fl. July." Babington, "7, 8." All these were thus in flower considerably later than described. They grow near Shaugh, some six miles or more from Plymouth; and had I been in want of them, I should have thought it hopeless to search for them at this advanced period of the month. "*Nil desperandum*," must, however, I think be my future motto, when engaged in botanizing.

September 22. Stimulated by my friend's success, adverted to in the last paragraph, I this day made a trip to the locality which he had so recently visited. Not finding the boggy spot where the plants grew, the enthymeme that I did not find the *plants*, will be readily admitted. But, though disappointed in this respect, I did not regret my excursion; for it brought me within view of the romantic crags that abound on the confines of Dartmoor. Here rises in majesty the Dewer-Stone, ever hallowed by the sweet strains of Devon's greatest poet, Carrington; and here commingle the flashing, leaping, roaring rivers Cad and Meavy, and become the parents of the Plym. Nor did I return with an entirely empty vasculum, having availed myself of the opportunity to replenish my stock of *Wahlenbergia hederacea*, which is plentiful in the neighbourhood. Remark that it was now late in September, and the plant in full bloom, particularly on the borders of a piece of heathy ground, where it grew among furze. Hooker says "Fl. July, August." Babington, the same. *Sarothamnus scoparius* was in fl. Restricted by Hooker to "June;" and by Babington to the "5th and 6th" months. *Galium palustre* in fl. Like the rest unwilling to depart. Hooker names "July" as its flowering-season, and Babington the "7th and 8th" months.

September 24. *Verbascum Blattaria* in fl. near Devonport. Hooker, "Fl. July." Babington, "8." I know but of one station for this plant; and its colour is not *yellow*, but whitish or cream-coloured, tinged more or less with purple. *Alsine marina* in fl. Hooker, "Fl. June, July." Babington gives greater latitude, "6—8."

October 15. Took a country walk. Leaves of the trees falling

around, bespeaking the approach of winter. A few composite plants remain in bloom, especially *Senecio Jacobæa* (Hooker, "July, Aug." Babington, "7 to 9") and *Chrysanthemum leucanthemum* (Hooker, "June, July." Babington, "6 to 8"). On a piece of elevated, stony ground near a plantation, saw four plants of *Viola canina* in fl., with one capsule nearly ripe. How untimely, I thought, was their appearance. What was the cause? Were they lingerers in the train of Summer — mourners over its faded splendours? Or were they to be regarded as pioneers in advance of the distant spring—as harbingers of brighter days to come?

November 26. Weather mild. Found in fl. in comparatively sheltered lanes, but near the sea-coast, *Jasione montana*, *Achillæa Millefolium*, *Senecio Jacobæa*, *Crepis virens*, *Ranunculus acris*, *Geranium Robertianum*, *Betonica officinalis*, *Linaria Cymbalaria* (this on garden walls), and *Erythræa Centaurium*. I will not unnecessarily encumber your pages by quoting the range of flowering-season given in books to the plants just named. Such of your readers as may feel interested in the subject will refer for themselves. Suffice it to say, that they should (according to the writers) have long since fallen asleep.

Christmas Day. Weather moist and mild. *Geranium Robertianum* and *Lychnis dioica*, as well as *Crepis virens*, still in bloom, at Maker, Cornwall. *Iris fetidissima* had not yet discharged all its bright red seeds. They were showing conspicuously in the large spreading seed-vessels. Furze in fl. In the garden of a friend at this place, primroses, "that come before their time," were daring to unfold their petals; and the large periwinkle was fully open. In the fields, daisies, richly crimson-tipped, were boldly parading themselves. I have remarked that the crimson tinge of the outer florets of the daisy is more deep and exquisite in winter than in summer.

The season mild and wet to the end of the year. *Vale, Vale,*
1848!

ISAIAH W. N. KEYS.

Plymouth, February 16, 1849.

Notice of 'Flora Hertfordiensis: or a Catalogue of Plants found in the County of Hertford, with the Stations of the rarer Species.' Part IV. By the Rev. R. H. WEBB, M.A., and the Rev. W. H. COLEMAN, M.A.

WE gave a notice of the above-named work, on publication of Part First, last summer (Phytol. iii. 184). Its appearance was then greeted with much satisfaction, as that of a really valuable addition to our lo-

cal Floras; and certainly with no diminished satisfaction do we now see it brought to completion by the publication of Part IV. The attention of our readers is again drawn towards the work, because we desire earnestly that it should become generally known to all who may be likely to write on local botany for the press. We have called it a valuable addition to the local Floras previously published; but it is more than this: it is a new starting-point, behind which its successors cannot lag, without being rendered amenable to unfavourable comparisons. Hitherto, a local Flora has usually come before the public under false pretences; professing to be what it was not. The Flora of a county, for example, has commonly included a pretty complete list of species and localities for a small part of its county, namely, that immediately surrounding the dwelling-place of the author; interspersed with an imperfect list of species and localities for all the rest of the much wider area which it professed to embrace; the indications of frequency or infrequency, in like manner, being founded upon equally limited and imperfect research, although applied to the whole county. Nor have these defects been characteristic only of Floras ostensibly embracing whole counties or other equally wide spaces; for some of the most imperfect and hastily got up Floras have related to small circuits around provincial towns, most superficially and partially examined by the authors.

We must admit that such defects, arising from incomplete or unequal examination of the area embraced in a publication on local botany, cannot be wholly avoided. Nor is the 'Flora Hertfordiensis' itself altogether free from them; certain portions of the county having evidently and confessedly been much less thoroughly investigated than others. Two obvious correctives present themselves, in the way of remedies or guards to prevent misinformation being thus given; and both of these appear in the 'Flora Hertfordiensis.' The one, is that of limiting a Flora to the space which has been actually and thoroughly examined; the other, that of distinguishing the well-investigated from the ill-investigated portions of the whole space. In the Flora now under view, the county is divided into three principal divisions, and these again into twelve subordinate sections. And as the species are severally traced through each division and section, so far as ascertained to occur in them, with a tabular summary of the numerical results, we gain an amount of positive information, and a probable test of negative information, such as we should vainly endeavour to extract from any other local Flora, written in the ordinary method. The 'Flora Hertfordiensis,' in truth, is far more than a

‘Catalogue of Plants found in the County of Hertford.’ Over and above this one general list of species for the county, it comprehends twelve several Floras, which are more or less complete catalogues of species, for as many different sections of the county; also three distinct Floras for larger tracts, formed from the union of minor sections. The list of species for one of these sections, comprising an area of eighty square miles around the county town, is probably more complete than any local Flora hitherto published; since we find it including the large number of eight hundred and two species; while the smallest sectional list rises to the respectable number of four hundred and ninety-three species, for an area of sixty square miles.

The full value of the ‘Flora Hertfordiensis,’ as a contribution to geographical, as well as to strictly local botany, will not be properly understood and appreciated until we can obtain other similar publications, on which to found statistical estimates and comparisons. Some quarter of a century hence, this improved conception of a local Flora may have become familiar and normal with the botanists of that future period; and possibly enough it may have been again improved upon in some of its details. But the genuine idea is now before us; namely, that of rendering a local Flora truly an exposition of local botany, instead of being simply a list of English plants, adapted to a local space: the difference between these two things is very great. But we will abstain from further remarks ourselves, and proceed to cull a few extracts, which may interest readers of the ‘Phytologist,’ and convey a sort of sample of its contents. The plan or method of the work must be studied in its own pages.

Authorship of the Work. “The writer could wish here to state that, from the period of the first announcement of the Flora, made in the spring of 1840, up to the summer of 1847, his friend Mr. Coleman and himself were intimately connected in collecting information for the work; and though from the latter date until after the publication of Part I., his friend’s co-operation was suspended, still, since that stage of the work, Mr. C. has so zealously assisted him in revising and conducting the remainder through the press, that he cannot but consider that Mr. Coleman justly holds with him the position of joint-author, and would feel his disappointment very great were their names not to be associated in the title page.”—(R. H. W.).

Motto suggested. “My friend Mr. Babington has just sent me the following motto from Linnæus, which is so appropriate and happy, that I cannot conclude these remarks better than by commending it to the consideration of my readers, hoping it may help to excite their

botanical ardour. 'Turpe est in patria vivere et patriam ignorare.'—*Linn. Fauna Suecica*, Ed. 2 (1761), p. 544."—(R. H. W.).

Bromus tectorum, Linn. "Near the new mill at Hoddesdon. This is the first notice of the plant which has appeared in England. Our zealous correspondent, Mr. Henry Williams, observed it in the above given locality in the summer of 1847, and again in 1848. He sent it to us, named *B. diandrus*, but not feeling satisfied about its identity, we referred it to Mr. Babington, who has determined it to be the true *B. tectorum*, and has kindly undertaken to describe it." "Since the above paper was written, we have learnt that the station is nearer the 'New Mill' than we had supposed, and that the plant was found in company with *Setaria glauca*, which circumstances render it not improbable that it may have been introduced with imported seed like other plants before-mentioned which have been found in a similar situation."

Digitaria sanguinalis, *Oplismenus Crus-galli*, *Setaria viridis*, *Setaria glauca*, *Panicum (Setaria) verticillatum*. "With the exception of *Digitaria sanguinalis*, which has probably been imported with soil from the continent, all the preceding grasses have doubtless been brought with flax and cole-seed to the Oil Mills."

Gastridium lendigerum. "A piece of heavy land on the east side of Bayford-wood, formerly ploughed, but long fallow and worthless as pasture, was ploughed up and sown with acorns and ash-keys, in the spring of 1841. In the following autumn appeared a plentiful crop of the present grass, which we have never noticed elsewhere in the neighbourhood. It had nearly disappeared in the autumn of 1842, and we have not seen it since."

Epipactis purpurata. "In Box-wood, Stevenage; apparently parasitical on the stump of a tree. Mrs. Harding, of Walkern! 1840. By the kindness of Mrs. Harding we possess the only specimen which was found in this station, as well as a coloured sketch of the recent plant. The specimen is too young to afford any character, none of the flowers being expanded; but Mrs. Harding's sketch represents the plant as wholly of a pale lilac colour, except that the flowers are yellowish. We have little doubt that our plant is that described by Smith in *E. F.*, from a specimen received from Abbott; and quite distinct from the plant of Forbes, figured in 'English Botany,' t. 2775, under the name of *E. purpurata*. This latter appears to be a mere form of *E. latifolia*; indeed, the figure is a better representation of the ordinary Herts form, than the *E. latifolia*, figured at t. 269 of the same work."

Fagus sylvatica. "This forms the principal part of the timber in all woods in the western portion of the county, which might hence be denominated the '*Regio Fagi*,' or region of the beech; as the eastern might, in like manner, take the name of '*Regio Carpini*,' or region of the hornbeam; while the northern or Ouse district, from its want of timber, must be called '*Regio Nuda*.' Some authors strangely mark the beech as an introduced species, on the authority of Cæsar, who states that Britain produced 'timber of all sorts the same as Gaul, except the *Fagus* and *Abies*.' The *Abies* is now confessed to be the *Pinus Abies*, or silver fir, and not *P. sylvestris*, the Scotch fir, which was formerly, on the same grounds, considered as an introduced species. And it is plain that either the *Fagus* of Cæsar was not the beech, or that Cæsar did not happen to encounter any of our native beech-forests during his short stay in Britain: for it is impossible to doubt the genuine wildness of this species in the west of our county, and still more in the adjacent county of Bucks, which is supposed to take its name from this tree."

C.

Notice of 'A Hand-Book of British Ferns, intended as a Guide and Companion to Fern Culture. By THOMAS MOORE, Curator of the Botanic Garden of the Society of Apothecaries.'

THE matter contained in this nice little book had previously appeared, as the author informs us, in the columns of a weekly newspaper, intitled '*The Gardener's and Farmer's Journal*,' and we have subsequently seen it, with some omissions, in another horticultural periodical. The work is very unpretending, adopting, in almost all instances, the modern improvements of Presl, Smith and Newman: the last-named author is used somewhat too freely in the details of structure: wherever figures or descriptions are borrowed the obligation should be scrupulously acknowledged. In instances where the author aims at originality he does not appear to be particularly happy: but of this the reader may judge from the list which follows.

Allosorus crispus. Of this fern two named varieties are thus described:—

"*β. dentatus*; barren fronds—ultimate divisions oblong-oval, the margin sinuate-dentate, feather-veined; fertile fronds—ultimate divisions roundish oblong.

"*γ. linearis* ; barren fronds — ultimate divisions narrow-linear cleft at the apex ; fertile fronds — ultimate divisions oblong."

Our objection to this may be stated in very few words : such forms of frond as those now for the first time named commonly grow on the same plant with fronds of the normal form : on this principle of naming forms of leaves, how many named varieties might we not make of a mulberry tree !

Lastræa Filix-mas. The curious form of this species figured in Newman's 'British Ferns,' 197, *b*, is named *β. incisa*.

Lastræa spinulosa. The synonyms, as well as the involucre and scale (copied from Newman), are those of one species, while the frond with the densely chaffy stipes is that of another.

Lastræa dilatata. In this species the stipes is represented as sparingly clothed with minute scales, yet the involucre and scale (again copied from Newman) are those of the densely chaffy species, which Roth has called *multiflora*, and the description favours the idea that Roth's plant is intended. In the synonymy this species is given without doubt as the *Aspidium dumetorum* of Smith, 'English Flora,' iv. 281. But although thus restricted, it is made to contain four named varieties, as under :—

"*α. multiflora* ; fronds ovate-lanceolate, semi-erect ; scales of the stem with a dark centre and diaphanous margin.

"*β. dilatata* ; fronds almost triangular, drooping, dark green ; scales of the stem as in *α*.

"*γ. maculata* ; fronds oblong-ovate ; scales of the stem of an uniform reddish brown colour.

"*δ. collina* ; fronds narrow elongate-lanceolate ; pinnæ very distinct ; scales of the stem as in *α*."

We must leave this "dilatata question" in the hands of our readers : it appears to us rendered more obscure than ever. Can Smith's *dumetorum* be so comprehensive ?

Polystichum angulare has two named varieties.

"*β. subtripinnatum* ; lower pinnules deeply pinnatifid the basal lobe almost stalked.

"*γ. angustatum* ; pinnules small, narrow, acute."

Cystopteris fragilis has three named varieties, of which the first and last only are new.

"*α. Dickieana* ; fronds ovate-lanceolate ; pinnæ crowded, overlapping ; pinnules crowded, broad obtuse, very slightly toothed ; sori marginal distinct.

"*β. dentata* ; fronds oblong-lanceolate ; pinnules ovate-obtuse bluntly toothed or rarely pinnatifid ; sori marginal often crowded sometimes confluent.

"*γ. vulgaris* ; fronds lanceolate ; pinnules ovate-acute pinnatifid, cut or serrated ; sori becoming confluent more central than in *β*."

In *Asplenium marinum* we have two named varieties, but the name is the only addition made, the forms of frond being figured by Newman.

"*β. acutum* ; fronds elongate ; pinnæ elongated acute.

"*γ. lobatum* ; fronds elongate ; pinnæ auricled and deeply lobed."

In *Pteris Aquilina* we have two named varieties.

"*α. vera* ; pinnules inferior pinnatifid (sometimes only sinuate) the segments oblong obtuse ; superior undivided.

"*β. integerrima* ; pinnules throughout entire, except occasionally one or two of the lowest on the basal secondary pinnæ slightly lobed."

Our readers will see how easy it would be to multiply names *ad infinitum* on this plan ; but to what good purpose does it tend ?—is our knowledge advanced one iota by such name-giving ?—is the study of ferns rendered more easy ? Is not this nomenclature of fronds carrying varieties to an extreme never intended ? Can a variety be a portion of an individual ? Can it be less than an entire individual ? We leave our readers to frame their own replies. Still we like the little book : it is well calculated to coax the idler into an agreeable improving occupation, the study of Nature in one of her most agreeable moods. And whatever does this has our cordial approbation. No one can stop with this "hand-book." No one can rest satisfied with the information it conveys. It must create a thirst for more satisfactory, more perfect knowledge.

After these gentle criticisms (we would not break a fly upon the wheel), we have great pleasure in turning to that portion of his subject which the author evidently understands, and in citing the results of his practical experience.

Polypodium vulgare. This fern we have always considered a ticklish one under cultivation, but our author says it "is exceedingly well adapted for planting on artificial rock-work, and among rustic work formed of the stumps of old trees. A compost of turfy peat, decayed wood, porous broken bricks and rough charcoal, will be a proper medium for its roots under pot-culture. It is readily increased by dividing the creeping caudex."—p. 21.

"*Polypodium Phegopteris* requires a very abundant supply of moisture both about its roots and fronds: the soil, however, should be well drained. * * * * As a pot-plant it is a very delicate object, and should be planted in well-drained pots of turfy peat soil, mixed with decayed tree leaves, charcoal and sand. In the summer season it grows best in a cold frame, shaded from bright sunshine; and it may be induced to grow in winter by the application of heat, which it stands well."—p. 24.

Polypodium Dryopteris may be treated like the preceding: it grows much more freely than *Phegopteris* in pots.

Polypodium calcareum. Of this species Mr. Moore's experience is diametrically at variance with our own: we should describe it as the hardiest of ferns, requiring no peculiarity of soil or situation, regardless alike of scorching sun and London soot, it braves heat and cold, drought and moisture: it is the only species that thoroughly thrives in the adulterated atmosphere of towns. Mr. Moore says it is "somewhat more shy under cultivation than the last. To the turfy peat, which forms a good basis to the compost for ferns, a portion of chalk, limestone, old mortar, or broken freestone, should be added, as well as the broken charcoal and the sand; the pots, too, must be especially well drained, or the plant soon dies."—p. 28.

Allosorus crispus. "This little fern is a free-growing species under cultivation, and a very elegant ornament to rockwork. * * * It also succeeds remarkably well under pot-culture. When growing in pots it should have a well-drained soil, and there is no better compost for it than a compound of turfy peat, good free loam, broken potsherds, and small lumps of charcoal intimately blended in the proportion of two parts of each of the two former to one part of each of the latter. When planted on rock-work it should be fixed in situations where, while freely supplied with water at the root, all superfluity may soon drain away. It does not especially require shade, although it grows best when shaded, and indeed under artificial culture, the delicate texture for which the ferns are generally so much admired, is favoured by a moderate degree of shade. The potted plants must be kept drier in winter than in summer; in the latter season they ought to be pretty freely supplied; the moisture, however, should never become stagnant about them."—p. 32.

Woodsia Ilvensis and *W. alpina* "are best cultivated in moderate-sized pots, potted high amongst turfy peat, charcoal, freestone and sand; and kept in a cold frame, which should face the north in the summer season, and should at no time be kept constantly closed up.

Under cultivation they are very impatient of sunshine and stagnant moisture. The plants may be advantageously elevated a little between three small pieces of freestone, the soil being carefully placed about their roots. They must not be kept too damp, especially on the approach of and during the continuance of winter. A shady shelf in a cool greenhouse where there is a free circulation of air, is a good situation in which to preserve them during the dormant season. The tufts should be occasionally divided, the plants being more liable to perish from damping off when they form large masses than when of smaller size."—p. 37.

Happy the man who has large masses of *Woodsia* to divide !

The species of *Lastræa* are so easily cultivated that no kind of care is required, unless it be with *Oreopteris*, which has a great partiality for the fresh air of woods and mountains, and cannot bear a clinker rockery, and utterly abhors the imprisonment of a Wardian case.

Polystichum Lonchitis "may be kept in good health if potted firmly in a soil of sandy loam, which should be tolerably well drained. The best situation in which to keep it is a cool, moist frame, in which it will grow with tolerable vigour. Fully exposed on rockwork, it will rarely be found to have a prolonged existence, unless the circumstances of its natural localities can be tolerably simulated."—p. 71.

The fern thrives remarkably in cultivation in the Botanic Gardens of Ireland, no care seems required to bring it to a degree of perfection that it rarely reaches in a state of nature. Passing over a number of species, concerning which we find nothing that we can quote with advantage, we arrive at

Asplenium marinum. "No one, as far as I am aware, has been successful in cultivating this plant in the open air; exposed unsheltered to our climate it perishes. Whether this be the consequence of its requiring warmth and shelter, as indicated by its foreign habitats, or the peculiar saline influences of the sea, as its almost universal position in a wild state may point out, I am unable to say; but probably it is constitutionally tender, since it is found to grow freely enough, in fact, to attain great luxuriance, in a shady position in the ordinary warm, moist atmosphere of a plant-stove. I find it, however, to grow very readily in a common frame kept closed. It is very difficult to establish when newly moved from its native rocks, the roots being of necessity much injured in the process of removal; but when once established and placed in a sheltered position, it will grow freely and may be increased without difficulty by the ordinary process of division. It delights in shade, and when grown in pots should have

a compost of turfy peat, silver sand, and broken sandstone and charcoal. Planted in shady rock-work, in a greenhouse, or plant-stove, it soon becomes vigorous, and from its evergreen habit is at all times ornamental. When cultivated in a common frame it should have some protection against cold in winter; and is in fact best placed with other tender kinds beneath a hand-glass kept closed in the greenhouse."—p. 109.

Trichomanes speciosum. "This fern requires a damp, calm atmosphere, without which it will not thrive; hence all attempts to cultivate it artificially other than under close confinement have failed. It likes warmth, and thrives admirably under a glass in a shady part of a plant-stove or greenhouse. Mr. Smith, who has grown it very successfully, thus explains how it and the *Hymenophyllums* should be planted: 'Procure some porous freestone (if in one mass so much the better) large enough to fit the mouth of the pot in which the plant is to be grown; this should be a good sized one, as the plants should be seldom disturbed. Fill the pot so far full of broken crocks for drainage as to admit of the sandstone lying firmly on the mouth of the pot, and on a level with or rather above the rim. Then strew a little silver sand over the stone, and arrange the caudex of the plant neatly on the surface, strew a little more sand over this and follow by a good watering. If necessary the plant must be supported in a firm position by means of some small stakes, judiciously placed. All this must be done with great care, for neither the plant nor the sand must be disturbed. Next place a hand or bell-glass tightly over the plant, and remove it to a shady place, either in the stove or greenhouse or sitting-room, but away from sunshine. After this all that is required is careful and rather abundant watering, sufficient, at least, to maintain a constant dampness about the plant.'"—p. 142.

The same treatment is recommended for both species of *Hymenophyllum*.

And here we must close our extracts, finding nothing in the treatment of the remaining species to which we can invite the reader's attention. From the specimens we have given our readers will conclude that the author is a greater adept in horticulture than in botany, and that he would have acted more wisely in adopting the botanical portion of his work from other authors, say the fifth edition of the 'British Flora,' the second of Babington's 'Manual,' or the second of 'British Ferns;' in either case the confusion always incidental to an altered nomenclature would have been avoided.

O. P. Q.

Notice of 'The Elements of Botany. By M. ADRIEN DE JUSSIEU, translated by JAMES HEWETSON WILSON, F.L.S., F.R.B.S., &c., &c.' London: Van Voorst, Paternoster Row, 1849.

A VERY good book very well translated.

At a period when elementary works on Zoology and Botany are more abundant than students, and are for the most part the handiwork of those who have never advanced beyond the elements of the respective sciences, it is very refreshing to be presented with an introductory work by one who, like his great namesakes, has climbed the tree of botanical knowledge to its topmost bough. It is somewhat remarkable that France should have produced three such distinguished botanists of one name, and we believe of one family. The eldest, Bernard de Jussieu, was one of those whose pleasure lies in acquiring rather than in diffusing knowledge. His comprehensive views of system, shared, we must recollect, by the great Linnæus, were rather depicted than described. In the gardens of the Trianon he drew a map of that method which has since received his name and the approbation of the scientific world. It remained for Antoine Laurent de Jussieu to make the world acquainted with the views of his predecessor. This gifted man began his labours by editing the manuscript catalogue of the plants as arranged by Bernard at the Trianon, so that the exact state of botanical knowledge at that period is registered in a manner that can never be obliterated. Antoine's own labours followed, and by a comparison of these with the catalogue in question, we see at a glance the exact share of each in that system which has almost universally received the title of *natural*. On this, as on all questions worked out by a plurality of minds, the disciples have contended for differences which the teachers never enforced, have introduced antagonism where all might have been harmoniously blended. The numerical system of Linnæus has its foundation in nature equally with the more comprehensive system of Jussieu: witness the ternary flowers of the endogens: the error was in making number too exclusively the guide. Number is an invaluable assistant, but a most arbitrary master.

The following extract from the work before us will be read with interest.

"A. L. de Jussieu admits, like Adanson, that the examination of all the parts of a plant is necessary for its classification, but, whilst he was pursuing this complete examination, he did not endeavour to

deduce the order of the genera theoretically, in order to group them into families, he imitated the manner in which the genera themselves were formed. Botanists, struck with the complete and constant resemblance of certain individuals, had collected them into species; then, according to an equally constant resemblance, but much less complete, had collected the species into genera. The characteristics, which may vary in the same species, will depend on causes not innate in the plant, such as its height, the hardness or softness of its wood, certain modifications of shape and colour, &c., which change with the soil, the climate, and other purely accidental influences. The specific characteristics, on the contrary (those which ought to be presented by every individual, that is connected with others in forming a certain species, whatever may be the circumstances in which it is placed), will be inherent in the very nature of the plant. Amongst these characteristics there are some more important than others, less subject to vary in the different individuals; these, being always found in a certain number of species, impress upon them a resemblance sufficiently striking to allow us to constitute a genus. These will therefore have more value on account of their generality than the specific, and the specific than the individual. But how can we appreciate these different values? Nature herself has indicated to the observer the species and several of the genera by the points of resemblance with which she marks certain vegetables; beyond these genera this conducting thread was wanting, since all botanists, agreeing in almost everything up to this point, differed after they reached it, and followed each a separate route. There are, however, several large groups of vegetables connected with one another by characteristics of resemblance so evident, that they cannot escape the notice of the most casual observer, much less of a botanist. Besides these points of resemblance, common to every species of one of these groups, there are some which are only common to a certain number among them; so that it may be subdivided into a large number of secondary groups. These had been recognized as genera by botanists. There were, therefore, already a few collections of genera evidently more similar to one another than they were to those of any other group, or, in other terms, some families undeniably natural. Jussieu thought that this was the key of the natural method, since, by comparing the characteristics of one of these families with those of the genera which compose it, he would obtain the relation of one to the other; since, by comparing several of them with one another he would see what characteristics, common to all the plants of the

family, varied in such a one and such another; since he would thus arrive at the value of each characteristic, and this value, once determined by means of these groups so clearly arranged by Nature herself, could in its turn be applied to the determination of those on which she has not so clearly imprinted this family likeness, and which were the unknown quantities in the great problem. He chose, therefore, seven families universally admitted; those, which are known under the names of Gramineæ (*Graminées*), Liliaceæ (*Liliacées*), Labiatae (*Labitès*), Compositæ (*Composées*), Umbelliferæ (*Umbellifères*), Cruciferæ (*Crucifères*), and Leguminosæ (*Légumineuses*). He discovered that the structure of the embryo is identical in all the plants of one of these families; that it is Monocotyledonous in the Gramineæ and in the Liliaceæ, Dicotyledonous in the five others; that the structure of the seed is also identical; the Monocotyledonous embryo is placed in the axis of a fleshy perisperm in the Liliaceæ, on the side of a farinaceous perisperm in the Gramineæ; the Dicotyledonous embryo, at the summit of a hard and horny perisperm in the Umbelliferæ, without a perisperm in the three others; that the stamens, which may vary in their number in the same family, the Gramineæ, for instance, do not generally vary in the method of their insertion, Hypogynous in the Gramineæ and in the Cruciferæ; on the corolla in the Labiatae and the Compositæ; on an epigynous disk in the Umbelliferæ. He thus obtained the value of certain characteristics which would not vary in the same natural family. But, less in importance than these, there were others more variable, which he tried to appreciate in the same way, either by the study of other families formed by Nature herself, or in those which he formed by applying these first rules and several others, also founded on his observations. We cannot here enter into the details of this long and arduous undertaking, from which resulted a hundred families containing all the plants known at that time.”—p. 580. K.

Reply to the Editorial Observations on the Robertsonian Saxifragas, at page 451, &c. By CHARLES CARDALE BABINGTON, Esq., M.A., F.L.S., &c.

IN reply to the remarks of “C.” in the ‘Phytologist’ (Phytol. iii. 451, 452), I wish to state that there has never been any desire on my part to avoid the acknowledgment of a “mistake” of mine, which indeed was not a mistake at the time of its publication. As the new

facts observed by Mr. Andrews had been published in the report of the meeting of the London Botanical Society, of April 4, 1846 (Phytol. ii. 537; Gard. Chron. 1846, p. 254), at which he proved, by the exhibition of a series of specimens, that "the fact of the Hibernian forms *including* those of the Pyrenees is placed beyond all doubt or cavil," I never suspected that I was bound to write a paper upon the subject, nor that any charge could be brought against me, even by your correspondent "C.", for not going out of my way to publish those facts which Mr. Andrews was so well qualified to publish himself, and indeed had published. I supposed that all the interest of the subject was at an end after Mr. Andrews' discovery of the Pyrenean forms of the Robertsonian Saxifrages in Ireland, as that interest consisted in their supposed absence.

In answer to a letter from me, I am informed by Dr. Harvey that Mr. Andrews thinks that I prevented the publication of part of his remarks in the Reports of the British Association, and also of a paper sent to the 'Annals of Natural History' by him.

With the publication of the former I had nothing to do, as the local officers of the Association are not consulted upon such matters, and have no hand even in transmitting the papers, communicated to the sections, to head quarters. The report was probably drawn up by one of the Secretaries of the section, to whom abstracts of papers ought to be given by their authors. Had that been done in this case, the report would have been such as Mr. Andrews wished.

Concerning the paper sent to be inserted in the Annals I know nothing, as it is not usual for the Editors of that Journal to submit papers, reflecting upon, or contradicting the statements of, one of their own body, to the person upon whom the reflections are made. I therefore did not see it, and know nothing about it. I feel certain that a *short* statement would have been printed.

After what had appeared in the 'Phytologist' (Phytol. ii. 537), I thought that I had done all that was requisite by adding, in the 2nd edition of my Manual (p. 126), which was published in 1847, to the account of *Saxifraga umbrosa* the words "All the forms are found in the west of Ireland," thus including amongst those found in Ireland the *a. crenata*, which was stated in the 1st edition to be the Pyrenean plant.

What I stated "so positively" in the Annals was, that having had occasion to re-examine the Irish Saxifrages, I had been "greatly struck by the uniform difference which exists between each of them, and the corresponding plant of the Pyrenees." In this, all that

requires alteration even now, is the substitution of the word "usual" for "uniform;" for I still think that the *usual* Irish forms differ from the *usual* Pyrenean forms of the plants.

I am truly sorry that any omission on my part should have appeared like a neglect of Mr. Andrews' observations, and am not surprised at his feeling sore when he supposed that it was intentional.

The existence of the Pyrenean forms in Ireland has now, at any rate, been made sufficiently public by appearing in two of the Botanical Journals, in addition to the report referred to above.

CHARLES C. BABINGTON.

St. John's College, Cambridge,
March, 1849.

A few Remarks on the "Proof" of C. C. Babington's "Error" respecting the Specific Distinctness of Saxifraga Geum, elegans, hirsuta, &c., &c. By JAMES BACKHOUSE, JUN., Esq.

WHILST the information given by "C." in the last No. of the 'Phytologist,' upon the Saxifrages of the umbrosa group in Ireland, cannot be regarded as otherwise than interesting and important, inasmuch as specimens have been gathered, seeds collected, and plants cultivated from both Ireland and the Pyrenees in abundance; yet the decision which "C." seems to have arrived at, that there is (or has been) an amount of evidence given sufficient to overthrow the specific distinction between umbrosa, elegans, hirsuta, and Geum which many persons believe to exist; and even to *require* from a careful and accurate observer, like C. C. Babington, as a "scientific, if not a moral, obligation," that he should retract his statements and declare his error, seems in my opinion entirely devoid of sufficient foundation and authority. I cannot say that the *probabilités* do not appear to be on the side of those who think these Saxifrages varying forms of one species; but before any *certain* conclusion is arrived at, we must be in possession of far more evidence than has yet been brought forward in the public journals.

The information respecting them actually ascertained, seems to be, that *every shade* of difference between the extreme forms (which may be considered as represented in S. umbrosa, var. *serratifolia*, and S. Geum, setting aside the "new one?") is found in a wild state, not only in Ireland, but also in the Pyrenees; and that seeds have been

collected, the plants raised from which have likewise passed completely one into the other; also that under cultivation the same variable characters are exhibited.

These are important points; but now the question presents itself, **WHENCE ARISES THIS INFINITE VARIETY?**

It may be that there is *one* species only, which, when far removed from others and every possibility of hybridization, has a natural tendency "to sport" in the seedlings, giving rise to an endless variety.

On the other hand it may be that there are *three or four* species, or more, forming a group, which are readily affected by hybridization, the seedlings from any one of which may, under such influence, show every imaginable intermediate state.*

Or it may be that there are *many* species, the individuals of which have a tendency, without hybridization, to vary and "sport" from seed; the seedling from one species so closely approximating the seedling from another species, as scarcely to be distinguishable. It is only necessary to refer those who have examined extreme forms of *Polystichum lobatum*, var. (?) *lonchitidioides*, to its close resemblance to *P. Lonchitis*; and yet it is known that the former under cultivation assumes the common form of *P. lobatum*, while on the other hand *P. Lonchitis* retains its character, or quickly *regains* it, where the original plant has taken the form of *P. lobatum* "*lonchitidioides*," by having grown in a shaded place.

Till these intricate questions are settled, who can be justified in saying that such are species or such are only varieties, or much more in saying that there is a "moral," or even "scientific, obligation" for a person holding *one* view to declare his error?

Because seeds procured from wild plants in Ireland or the Pyrenees produce infinite variety, we have no proof against the existence of several species: and because intermediate forms are found abundantly in the Pyrenees *as well as* in Ireland, it may be answered by way of argument, that *like causes under like circumstances produce like effects*.

Until extreme forms have been cultivated, *singly and far apart from others of the group*, for a season or two, and seedlings have been raised from these, which not only vary, but actually produce the opposite extreme, it appears to me that no one can say with certainty that there are not several species which have a tendency "to sport,"

* As in the case of *Pyrus Aria* and *P. Aucuparia*, where by hybridization every intermediate form has been produced.

and whose seedlings closely approximate. If they all be variations from *one* species, there is every probability that in two or three generations (successively cultivated on the solitary system) a general tendency will be manifested to return to one form. When we have satisfied our minds as to their specific distinctness or the contrary, we may try what freaks Nature will play under a regular process of hybridization.

The investigation must necessarily be tedious, and the examiner liable to many failures; but this *must not* discourage us.

J. BACKHOUSE, JUN.

York, March 10, 1849.

List of Plants naturalized near Brechin, Forfarshire, observed in 1848. By WILLIAM ANDERSON, Esq.

The following is a list of naturalized plants that flowered, last season, in woods near Brechin Castle, Forfarshire.

Meconopsis Cambrica

Chelidonium majus

Geranium phæum

Valeriana pyrenaica

Doronicum pardalianches

Polygonum Bistorta

Rumex alpina

The above are either escapes or outcasts from the garden.

Saponaria officinalis, var. with double flowers, grows by the side of a field a little above the service bridge to Brechin Castle. A cottage stood near the spot upwards of thirty years ago; hence the origin of the plant in this station. Flowered last October.

I cannot leave the subject of Brechin-Castle Botany without noticing further on the *Tulipa sylvestris*. In following up the remark made by me in the 'Flora of Forfarshire,' I may now add my firm belief that this plant is not indigenous in the station near Brechin Castle, from the circumstance of its being found only near the site of the old garden (and to all appearance where part of the mould has been deposited), and along with it the *Tulipa*.

I am surprised at the silence that has hitherto prevailed regarding this plant (at least in this station), while others perhaps less interest-

ing (in point of beauty at least) have received much attention. Don and others visited the above station at a time when the circumstance was as evident as it is now.

W. ANDERSON.

Temstall, Sittingbourne, Kent,
February 23, 1849.

Notes on certain British Plants for distribution by the Botanical Society of London, in 1849. By HEWETT C. WATSON, Esq.

AGAIN, as in several past years, I have to request that the Editor of the 'Phytologist' will grant the use of his widely-circulated journal, as the best medium for conveying to Members of the Botanical Society of London, some explanations about certain of the specimens which have been lately contributed to the Society, for distribution during the present year.

While conveying these explanatory notes on the specimens, I wish to avail myself of the opportunity thus afforded, for mentioning that the present will probably be the last year in which I shall myself in any way intermeddle with the distribution of British specimens from Bedford Street; and even this year I do so to a less extent than usual. I have come to the determination of withdrawing from active interference in future, mainly in consequence of not having found a *sufficiently systematic* cooperation with my own efforts, fully to ensure the beneficial results which had been anticipated as the fruits of much time and exertion bestowed by myself on the management of the distributions during the past five or six years; partly, also, from finding practical differences of opinion between myself and others, as to the *course* which is requisite for efficiently continuing the distributions on the large scale to which they have gradually attained by the increase of members, &c.

I am desirous of making this statement here, where it may be likely to catch the eyes of members, with the object of thus publicly releasing myself from all individual and personal responsibility in regard to the future management of the Botanical Society of London. This could not be the case while it was known to many of the members, and even publicly avowed by myself (see 'Phytologist,' ii. 1007), that I was really taking an active and extensive participation in most of the matters connected with the Society's distributions of specimens,

although nominally not holding any official position in the Society, as a Member of Council or otherwise. So long as that was the case, the contributors would still very justly hold me one among the persons who were responsible to them for the good and efficient management of the Society, in the principal department of its operations. But that responsibility now ceases.

The Botanical Society of London has been gradually brought to a state of great practical efficiency, as a centre and medium for exchanges of specimens among its members. It will require far less exertion of hand and head to keep it on the high level which it has attained, than was required to raise the Society to its present state, from the very low place which it held in public estimation and usefulness some six or eight years ago. Almost all the needful preliminary work of planning and preparing, in both the intellectual and the manual sense, has been completed, and has become converted almost into a matter of routine. So that it would be a very poor compliment, indeed, to the numerous other members, on and off the staff of office-bearers in London, were it now to be supposed that the operations of the Society cannot still be carried on steadily, usefully, and successfully, without the watchful intermeddling of a single individual who resolves to withdraw therefrom. At the same time that such a view is expressed, I am very far from confessing a low self-estimate of the consequences of my own past interference. On the contrary, I believe that the Botanical Society of London, in all likelihood, would have been utterly extinct before this date, if that interference had not taken place. True, my own efforts would probably have proved unavailing without the unwearied exertions of my very estimable friend, the Secretary of the Society. But equally so, I think, the latter might have failed without the former. And the cooperation of many competent botanists, as contributors, was quite as necessary to success.

My individual responsibility in the distributions of British specimens for the current year, is limited. I have very rapidly looked over the chief part of those sent in by contributors; and in so doing I have removed two lots or portions of them from the rest; namely, first, those which I believed to be mis-labelled through errors of nomenclature; secondly, those which it seemed desirable to send out to the members, although they might not be specially applied for as desiderata. One large parcel, that of Dr. Mateer, I refused to look at, on account of the bad condition of the specimens, in regard to their pressing and drying, although otherwise well selected. As a general

rule, the large parcels are found to contain the worst specimens; and yet there is a brilliant exception to this rule, in the parcels from Mr. French, which are both very good and very numerous in their contents.

The number of specimens which it is necessary to place in the category of mis-labelled plants, I am happy to say, is yearly decreasing; and the errors are chiefly found in the parcels of recently-admitted members, or of those botanists who contribute without being members of the Society. Moreover, the false labels now usually belong to allied species which have been confused together by authors, or to forms not always recognized as species. For example, it will excite no surprise that specimens of *Prunus avium* should have been labelled with the name of *Prunus Cerasus*, and by a good botanist, or that the specific names of the *Lastræas* should have been crossed and mis-applied.

In the latter of my two categories, I included such varieties and recently-discovered species as are not yet included in the 'London Catalogue of British Plants,' in or by which the members mark their desiderata; as also, any other plants of doubtful name, or requiring some special explanation. It is for the purpose of giving an explanatory notice respecting some of the specimens belonging to this second lot or selection, that I now seek to address the members of the Botanical Society, through the pages of the 'Phytologist.' I shall myself put up these specimens into packets, as far as their numbers will extend, and mark the several packets 1, 2, 3, &c., in a series up to 50 or 60, according to the fullness of their contents. The distributors in London will determine with whom, of the many contributors in 1848-9, the greater and earlier claims for them may rest. The *Anacharis Alsinastrum* and recently-distinguished species of *Filago* will be the only novelties, of which some duplicates will still remain over and above the fifty or sixty packets.

Filago canescens (Jord.), *F. apiculata* (G. E. Sm.), and *F. spatulata* (Presl.). All three of these having been heretofore included together, under the collective or general name of *Filago germanica*, I gathered a copious supply of each, in my own neighbourhood, in Surrey, in order that their distinctions should be rendered more clear and satisfactory, through all three being presented to the eye at once, with correct labels. Mr. E. G. Varenne also sent many examples of *F. apiculata*, collected at Kelvedon, in Essex; and Mr. J. W. Salter added a few others, labelled from Redneck Heath, Thetford, on the authority of Mr. C. C. Babington. To Mr. G. S. Gibson the Society was indebted for a large supply of *F. Jussiiæ* (Coss.), which is syno-

nymous with the *F. spatulata*. Among the specimens of *F. apiculata* (*F. lutescens*, *Jord.*) from the various localities, there is a close similarity of general habit. This is less the case with those of *F. spatulata*. The few of the latter species which I collected in a field of oats near Chessington Church, Surrey, are remarkable for their more upright and more regularly dichotomous growth, with narrower leaves. Others from a wheat-field, near Walton-on-Thames; in the same county, have a very spreading ramification, the branches being often horizontal or even deflexed, and the leaves are in general much broader. The specimens from Mr. Gibson are intermediate between these two forms, and approximate more to *F. canescens* (the ordinary *F. germanica* of authors) in their mode of branching. The distinguishing characters of the three apparent species may be found in the 'Phytologist,' iii. 314.

Anacharis Alsinastrum (Bab.). Only few specimens of this interesting plant could be distributed in the spring of last year. It was, however, mentioned in my notes (Phytol. ii. 41) under name of *Udora verticillata*. Since that time it has become familiar to English botanists by name of *Anacharis*, although many of them may be still in want of specimens; which can now be sent to all members of the Society, from the liberal supply furnished by the Rev. A. Bloxam, collected in the Reservoirs, Foxton Locks, near Market Harborough, Leicestershire. The long and very slender stalk which raises the flower above the surface, while the rest of the plant is wholly in the water, appears so weak or fragile that many of the specimens will be likely to reach their destination with the flowers broken off. Of course the *Anacharis* could not be introduced into the second edition of the 'London Catalogue,' which had been just printed when its discovery was announced; and it may therefore be worth while to mention that it will form a third genus under the order of *Hydrocharidaceæ*. It is probable that few young botanists would unite the *Anacharis*, *Stratiotes*, and *Hydrocharis* into one order, if they undertook to group plants according to general resemblance; yet the exigencies of the so-called Natural System require this; the system being, in fact, arbitrary and conventional in many of its details, although truly founded upon natural similitudes. Thus, even in the hands of that clever systematist, Dr. Lindley, it is more forced and arbitrary in its details, than with most other technical classifiers.

Melilotus arvensis (Wallr.). The first announcement of this species, as British, in the 'Phytologist,' iii. 344, was made on the authority of specimens communicated to the Botanical Society of London, by Mr.

G. S. Gibson; and to the same observant and liberal botanist the Society is now indebted for some duplicate specimens. By another season, we may hope, Mr. Gibson will be able to supply the species in larger quantity, and that it will be discovered by other of our lynx-eyed botanists of the present age. There seems much probability that *M. arvensis* has hitherto been passed by, as *M. officinalis*; from which latter it is distinguishable by the upper suture of the pod being glabrous, not pubescent as in *M. officinalis*. The flowers of Mr. Gibson's specimens are yellow, which is not always the case, according to continental authors. The relative length of the petals is relied upon for a diagnostic character between *M. arvensis* and *M. alba* or *vulgaris*; the wings being longer than the keel, in the former, and about equal to the standard; while, in the latter, the wings are stated to be nearly equal to the keel, and shorter than the standard. This is a small character, but apparently a correct one. It may be recommended to botanists that they should not pass by any locality of a *Melilotus*, this year, without examining specimens; three apparent species being now recognized in England, all of which may have formerly been considered as *M. officinalis*.

Agrostis (Apera) interrupta (Linn.). Specimens of this recent addition to the list of English plants, have been sent from the neighbourhood of Thetford, in Norfolk, by Mr. G. S. Gibson, and the Rev. W. W. Newbould; as likewise by Mr. J. W. Salter, who received them from Mr. C. C. Babington. Those communicated by Mr. Newbould, not having been severally labelled by the donor, have only the Society's general printed form without special locality, which is that of "Redneck Heath, near Thetford." As with two of the preceding novelties, this likewise should probably be deemed a newly distinguished, rather than a newly discovered, species with us; for there can be little doubt that it has been seen before, and regarded as *Agrostis Spica-venti*, a species which it resembles very closely, and with which it has been united by some botanists of the continent. It is to be distinguished from the *Spica-venti* by a closer or narrower panicle, and broad sub-oval anthers; the better known species having linear-oblong anthers, and a wider panicle.

Arenaria rubra β . *media* (Bab.). Under this name, Mr. F. J. A. Hort sends a few examples of a sea-side plant, which the same gentleman recorded in the 'Phytologist' for November last (iii. 321). It is the *Arenaria marina* of various English botanists; but differs from the plant figured as such in Eng. Bot., by the absence of a membranous margin or wing to the seeds. Its thick and perennial

root brings it near to *Arenaria macrorhiza* (*Req.*), from which, perhaps, it may prove not to be specifically distinct; while the same character will separate it from *A. rubra*.

Geranium striatum (Linn.). The name of this species was inadvertently omitted from the "Excluded Species" of the 'London Catalogue,' where it might have been placed on the ground of the plant having become in some measure naturalized in Cornwall. Mr. James Ward sends some specimens from Aske Wood, near Richmond, in Yorkshire, and labels them as "naturalized" in that locality, a circumstance which may be held to increase its claims to be recorded in our lists of established aliens.

Trifolium elegans (Sav.). This clover was mentioned in my notes on the Botanical Society's distributions of last year (*Phytol.* iii. 47), as having occurred in two parishes in Surrey. Last autumn it was found again, in a third locality,—a field of purple clover, in the parish of Chessington, Surrey, very near the Church. Only two specimens were found there, and consequently I could not obtain any for distribution. But having removed a root from the Claygate locality into my garden, in 1847, I was thus enabled to dry a good supply last summer, with a view of making the species generally known to botanists, and thus enabling them to detect it in other places, if curious to do so. As it appears to be imported and sown with foreign seeds of the common meadow clover, and is soon again destroyed by the ploughing of the ground for succession crops of grain, it can be regarded only as an alien of uncertain occurrence and duration. And it will seldom be detected even in fields where it grows, unless sought by pathways, or after the first mowing of the crop, when it is less concealed by the taller meadow clover.

Alchemilla conjuncta (Bab.). The specimens of this, also, are from my garden; dried and distributed for the same purpose of rendering it familiar to botanists, in order that they may look for it in the localities of *A. alpina*, and may thus prove it to be (if it be) truly a British species; the evidence for which, as yet, appears to me to be extremely unsatisfactory, although four different localities have been stated for the plant. I think Mr. Babington correct in describing it as a true species, distinct from *A. alpina*; as it possesses well-marked characters, which are continued by seeds, without any gradual transition to *A. alpina*; though the latter does occasionally exhibit a distant approach to *A. conjuncta*, by the adhesion of its leaflets at their base, which is always the case in young seedlings, though disappearing with age.

Cerastium nigrescens (Edmondst.). Here, again, I distribute garden-grown specimens, raised from seeds of the Shetland plant. In this case I do so, because the chance of obtaining wild examples from the single and remote locality on record, is very slight. These garden specimens still closely resemble the wild plant of Shetland, in their almost orbicular leaves and their dark tint; but I have seen a plant which goes far to connect the *C. nigrescens* of Shetland with the *C. latifolium* of the Scottish Highlands; and which had sprung up in my garden, in a situation where it might have been the offspring of either, and I cannot even guess of which of them satisfactorily.

Viola flavicornis (Sm. Herb.). Mr. Sansom has again sent a supply of this *Viola* from New Brighton, on the coast of Cheshire; and I would refer to the remarks of last year, in regard to the specimens from that locality, in *Phytol.* iii. 47. Mr. Varenne also sends the same species (as it appears to me) labelled "*Viola lactea*, Sm.," from Tiptree Heath, Essex. And other examples from myself, well corresponding with those from Essex, will be found accompanying those from Mr. Sansom and Mr. Varenne, for sake of comparison. My own labels bear a reference to the '*Phytologist*' of 1849, instead of locality; the specimens being plants from my garden, which had sprung self-sown about wild roots transplanted into the garden. I have labelled them "*Surrey Violet*," because that name has been used by me repeatedly in the '*Phytologist*.' The late Mr. Forster referred the "*Surrey Violet*" to Smith's *V. lactea*; and I quite concur in regarding it as identical with the species so named in Smith's own herbarium. Still, it appears to be exactly the same thing with Reichenbach's 4501 (*ericetorum*, *lucorum*, *sabulosa*), to which (in the form or variety *sabulosa*) Reichenbach himself referred Smith's *V. flavicornis*. The *two species* which we possess in England are given under *three names* in Babington's Manual, but I think that the following is the solution of their difficulty; that is, a solution from Nature, not from books.

1. First species, *V. sylvatica* (Bab. Man.), is the ordinary hedge-bank and coppice plant, called *V. canina* by ninety-nine in the hundred English botanists, including Smith, Hooker, &c.
2. Second species, *V. lactea* (Sm. Herb.), is the "*Surrey Violet*" above mentioned, and the same with Mr. Varenne's plant from Tiptree Heath. Nor can I see how to distinguish it specifically from Mr. Sansom's Cheshire specimens. If the plant figured in '*English Botany*,' as *V. lactea*, be the same species with the specimens preserved in Smith's herbarium,

it is rather an extreme form in the length and narrowness of its leaves.

3. Under "*V. canina* (L.)" of his Manual Mr. Babington has united (confused, I should rather say) small specimens of the "First species" with the broader or more cordate-leaved forms of the "Second species" above indicated. I am perfectly certain, after several years' observation and cultivation of the plants, that the confusion here noted does occur in the 'Manual of British Botany.' But I cannot confidently assert that *only* two species of this group are to be found in England: it may be that three do exist with us; although, as *natural* species, they will still not correspond with the three *book* species of the Manual.

Mentha rotundifolia (Linn.). Mr. E. G. Varenne sends some specimens thus labelled, from a ditch, Messing, Essex. I should myself have labelled them, not without some degree of doubt, as *M. sylvestris*. They show one of those intermediate forms which render absolute distinction so difficult between the two species mentioned, and which have induced some botanists to suspect "that they may be states of one and the same species," as recently remarked (Phytol. iii. 440) by Dr. Bromfield. As usual with the specimens from Mr. Varenne, they are well dried and well labelled, exactly what labels and specimens should be when sent to the Botanical Society for distribution. And the same compliment might be truthfully extended to those of Mr. Taylor, Mr. Salmon, Mr. Barham, and, indeed, many other members now.

Tormentilla reptans? I should be glad to have the opinion of botanists respecting the correctness of this name. During several years I have examined the wild plants of *Potentilla reptans* and *Tormentilla officinalis*, under various conditions of soil and situation, in the vain hope of satisfactorily identifying the *Tormentilla reptans* with one or other of them. I can still reach only the apparent conclusion, that varieties of each may pass for *T. reptans*; being those intended under the names of "*nemoralis*" and "*pseudo-nemoralis*" in the 'London Catalogue,' under the genus *Potentilla*. I consider the specimens now sent out (if not a distinct species, which seems less probable) to be a variety of *Potentilla Tormentilla* (*Tormentilla officinalis*), although the flowers are sometimes five-petalled, and the stems somewhat creeping. I dried forty specimens, the whole of them from one plant, and therefore the radical leaves are wanting on nearly all of them.

Centaurea nigra, *radiate varieties*. I have dried a few specimens of two varieties of *C. nigra*, which grow very sparingly in my own neighbourhood. In the one which is labelled as "*C. nigra*, *var. radiata*," many of the outer florets, two, or even three rows, are longer than the rest, giving to the flower-head a semi-double, rather than a truly radiate appearance. This variety occurs on the borders of fields, single plants here and there, intermingled with the ordinary *C. nigra*, from which it differs only in the slight peculiarity mentioned. In the other variety or species a few of the outer florets, usually a single row, are very much longer than the rest, giving quite a radiate appearance to the flower-head. This variety occurs by road-sides and on hedge-banks, not by single plants only, but several in a locality, scattered chiefly about the borders of coppices, where the soil is very sandy. I have labelled it "*C. nigrescens*," although the specimens have not the other character given to that alleged species, namely, the separation of the two or three innermost rows of involucral appendages from the rest; while those of the other less radiate form do show that character in some degree. But the character is utterly worthless as a distinction; for I have seen it well marked in living plants of the ordinary *C. nigra*, totally rayless; and it can be produced by the process of pressing the specimens. I may observe here, while alluding to the *Centaureæ*, that *C. Jacea* is a common continental species, to be seen in every collection of European plants; and that the plant of the Belfast locality was the true species, unless I mis-remember the specimen in Smith's herbarium. All the English and Scottish specimens, which I have seen labelled as *C. Jacea*, belonged to *C. nigrescens*.

Various. None of the other plants seem to require special notice or explanation. Mr. Bentall sends some neat little specimens of *Lathyrus Aphaca*, in an early stage of growth, in order to show the true leaves, which are replaced by the enlarged stipules in the more advanced growth. By the by, if any recommendation of 'Bentall's drying paper' were still required, the beautiful condition of Mr. Thomas Bentall's specimens would well furnish this. Mr. Ward sends the radiate form of *Bidens cernua*, from Bolton-on-Swale, near Richmond, Yorkshire. Mr. Moore sends some slight varieties of ferns. Dr. Steele sends an Albino variety of *Euphrasia Odontites*, with white flowers and pale green stems. But the labels of these and some other things will sufficiently explain what they are. They are distributed with the new and dubious species, because they cannot be

obtained in the ordinary routine of applying for desiderata by checking their names in a 'London Catalogue.'

Error. Mr. Dennes informs me that through some mischance a part of the labels written for *Sium latifolium*, in 1847-8, were attached to specimens of *Cicuta virosa*. Those members who received specimens of the former, according to labels, should make sure that they have not got the rarer *Cicuta* instead. I think the specimens were from Norfolk.

Foreign Specimens. In concluding my notes on the Society's distribution of British plants in the the current year, I may append a recommendation that any of the members who desire foreign plants, European or exotic, should apply to me by post letter at an early date. Hitherto the foreign specimens have been labelled and distributed almost solely by myself. But I fear this must be the last year of my doing that troublesome work. And if I judge of the future by the past, few members will get any foreign plants after I cease to look to them. I should, however, observe that a year or a year and a half ago, Mr. Henfrey commenced to label a numerous and beautifully dried collection of United States plants; but I am not aware that any of these have yet been distributed to members, though many of them have been labelled by Mr. Henfrey for that purpose. Like many other specimens, these Americans remained for several years in the Society's rooms, unseen and unuseful. Indeed, it appears to have been the rule of conduct in Bedford Street to shut up foreign specimens in boxes and cupboards, useless to every body, until destroyed by insects. I have myself rescued and distributed a good number of them; but still many remain, doomed to destruction by vermin, without being of the smallest use to any body. A very large mass of foreign specimens has also been set aside, and is now stowed away in cupboards, ostensibly in order to constitute a general herbarium. But these are totally inaccessible for use and reference, and will probably be destroyed by insects in the lapse of time. The Botanical Society of London cannot command the pecuniary funds, or the skilled labour, which would be required to make a general herbarium of reference; and yet the exchanges and distributions have been much impeded by the unwise attempts to effect this and other objects, which there is neither money nor resident knowledge adequate to accomplish. I should recommend some five and twenty or fifty English botanists, really and selectly such, to form themselves into an exchanging club, apart from both Botanical Societies; eschewing herbaria, libraries, meetings for discussion, and such like

local taxes on time and purse, which only interfere with the one useful and general object mentioned. *Tempora mutantur*: the object for which scientific societies used to be instituted are now better effected by periodical literature, by travelling, by correspondence, and by exchanges. Collective libraries are still important; but we have one for botany at the Linnean Society, and cannot have one at the Botanical Society of London.

HEWETT C. WATSON.

Thames Ditton, February, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, March 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

A donation of British plants was announced from Mr. T. Westcombe.

Mr. E. Berry, of Barnsley, Yorkshire, was elected a corresponding member.

A paper was read from Mr. Arthur Henfrey, containing some remarks on the "Discrimination of Species." While estimating highly the value of minute inquiry into the conditions presented by plants, the author could not overlook the inconveniences that arise from hastily giving a specific value to peculiar forms. All the deductions of philosophical Botany depend upon the fixity of species, as the science of numbers does on the definite nature of units. If we admit transitions, we can only define a species as a particular abstract form, more or less completely realised in nature, under peculiar conditions, which we do not yet understand; but if, as is usually the case, we admit the fixity of species, we are bound to exercise sufficient care in our observations, to avoid raising accidental variations to this rank. In reference to M. Jordan's views, it was observed that he also regards the species as an absolute, and not an abstract form, but on this ground calls every tolerably constant variety a species. Mr. Henfrey considered that an important point was overlooked as to the nature of varieties. He regarded them all as abnormal conditions, depending upon the morphological and physiological relations of the different organs. Accordingly, he would take that as the true example of a species in the Phanerogamia, in which the seeds (the highest product) were most perfectly and abundantly produced, in a generally

healthy condition of the whole plant, and from such examples alone, where any doubt existed, should specific characters be drawn. In cultivation, a most important test in doubtful cases, the plants ought to be exposed to many different kinds of condition, otherwise a variety or abnormal form might be continued for a time by the very same influences which first produced it, while the varied conditions would afford the best means of judging of the relative constancy of characters, afforded by the different organs of the plant.—G. E. D.

On the Flowering of Plants. By HENRY BOYER, Esq.

IN the 'Phytologist' for this month I read an interesting article on the "Dates of the Flowering of British Plants."

I send you a list of some of the plants I have found this year, with the dates, as it may tend somewhat further to illustrate the subject. The *Corydalis claviculata* is remarkably early; June and July are the months stated by Hooker and Babington for its flowering.

January 25. *Mercurialis perennis* and *Primula vulgaris*.

January 26. *Viola odorata* (not found by myself).

January 29. *Ulex europæus*.

January 31. *Vinca minor* and *Ranunculus Ficaria*.

February 15. *Tussilago Farfara*.

February 17. *Draba verna*.

February 19. *Viscum album*.

February 21. *Corydalis claviculata*.

March 9. *Veronica hederifolia* in flower and seed.

HENRY BOYER.

Farnham, March 15, 1849.

Occurrence of Sphærocarpus terrestris near Fakenham.

By GEORGE FITT, Esq.

BEING at Gately, five miles from hence, on Monday last, I examined a turnip-field which looked a likely place for *Sphærocarpus terrestris* to grow in, and to my great pleasure found it in abundance, and producing fruit. I have since examined fields within half a mile of this town, and with the like success. It is this season plentiful

amongst turnips, particularly Swedes; and the capsules most abundant.

Should any of your readers wish for specimens, I shall be happy to supply them, provided, of course, that the plant is in existence after the beginning of April, about which time it usually disappears. Dried specimens are scarcely worth examination, but I would supply them in default of fresh ones.

The early spring of 1846, when I before found this plant in fruit, was similarly mild to the present season, but more moist. The plant was then unusually abundant near Yarmouth, where it had been found for many years by Mr. Turner, but always barren.

GEORGE FITT.

Fakenham, March, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 439).

Artemisia Absinthium. In pastures, waste and stony places, on hedge-banks, by road-sides, and about farm-yards and villages in many parts of the Isle of Wight; abundantly. Salt ditch by the Vernon Hotel at Springfield, near Ryde, else almost unknown in this vicinity. Chalk-pit betwixt Yaverland and Brading, and a few plants on the northern slope of Bembridge Down, July 8, 1848, an extremely sequestered station. Plentiful and truly indigenous along the whole length of the Undercliff, in rough pastures and dry wastes, at Bonchurch, Ventnor, St. Lawrence, Bankend, &c. Profusely about Niton, as between Mount Cleve and the lighthouse (St. Catherine's), and in pasture ground beneath the cliff behind the Sand Rock Hotel. Everywhere along the road betwixt Niton and Blackgang, preferring rocky, arid places, the débris of the cliffs, and along the stone fences. In less certainly natural stations about farm-yards and villages, as at Yaverland, Kingston, Redway, Gottens, and many other places. I am not yet in a condition to state its frequency on the mainland, having received but few notices of it from correspondents; nor have I remarked it since I began to register the plants of the county gene-

rally, about a year or two back. Andover; Mr. Wm. Whale. Fontley iron mills; Mr. W. L. Notcutt.

Artemisia vulgaris. Abundant on dry hedge-banks, in waste ground, thickets and borders of fields in most parts of the county and Isle of Wight. I found the mugwort extremely common about Montreal and Quebec, September, 1846, where it was perhaps originally introduced from Europe for medical or economical purposes, but has now quite the aspect of a native production of Lower Canada.

———— *maritima*. Vars. β . *gallica* and γ . *salina*. Both forms very frequent in salt-marsh ground and muddy shores, both of the island and main. Shore near Quarr Abbey, sparingly. Shores of Brading Harbour here and there, as about St. Helen's, Carpenters, &c. Thomess Bay, King's Quay, and abundant in the salt marshes round Newtown and by the Yar. Near East Cowes. Frequent in Hayling Island, and shore betwixt Emsworth and Langstone in many places. Common, probably, along the entire Hampshire coast where it is low and muddy. Occurs for the most part in great abundance on its several stations, where it recommends itself to notice by the fine and powerful camphorated fragrance it gives out under the hasty tread of the least regardful of Nature's infinitely varied sources of delight and instruction to man. For myself, I much prefer the scent of this species to that of the common southernwood (*A. Abrotanum*), as purer or less contaminated by a certain bitterness which pervades the genus, and from which that old favourite of our English gardens is not absolutely free.

†———— *cærulescens*. Sea-shores; a very doubtful, and now apparently extinct native of England, if it was ever really found in Britain. "At Portsmouth, by the Isle of Wight;" Gerarde. On the coast of Brading Harbour, near Broadstone; Mr. W. D. Snooke. This species has been introduced into the British Flora on the authority of Gerarde and of Tofield; but although the old herbalist mentions it as a native of the opposite coast of Hampshire (Portsmouth), he does not, as Sir James Smith would lead us to suppose, assign the Isle of Wight as its place of growth, an error which seems to have originated with Smith, and from his own to have been copied into our later British floras. Yet in Mr. Snooke's little work (see note, p. 437) here referred to, a specific locality is given for *A. cærulescens* within the island, but where I have sought it without success. Mr. S. cannot himself now account for its insertion in his 'Flora Vectiana,' and there can be little doubt but that to some error or inadvertence its announcement in that catalogue was owing. Gerarde (em., p. 1104)

couples. Rye and Winchelsea with Portsmouth as stations for his sea mugwort, or *Artemisia marina*, as he calls it (at fig. 8), referred by modern authors to *A. cærulescens*, and no doubt correctly; carefully distinguishing our common *A. maritima* as white sea wormwood (*Ab-sinthium marinum album*, p. 1099, fig. 1), thus showing that both plants were familiar to him. Merrett (Pinax, p. 11) citing Gerarde's figure of *A. cærulescens*, says it grows betwixt Deal and Dover, and by the asterisk prefixed to the name implies that it was seen there by himself; the authority of the Pinax is not, however, always the most trustworthy, as Merrett appears to have been no greater botanist than zoologist, and might easily have mistaken one species for another in this instance, great as is the difference between them. How (Phytographia, p. 11) merely quotes Gerarde and Lobel, and probably takes the former at his word without examination. Parkinson says nothing of it as a native of Britain, nor does Morrison, both giving the coasts of the Adriatic as its true region. The Lincolnshire station at Boston rests solely on the testimony of Tofield as cited by Hudson; Ray and Petiver omit to mention or figure it, as both would certainly have done had it been found in their time. In the Dillenian edition of the Synopsis, indeed, we find reference made to a sea wormwood with a broader leaf (Syn. p. 188-189, Nos. 3, 4), found by Plukenet and Sherard, as well as of another observed by Dale near Colchester, which Ray is inclined to think may be one and the same species or variety with the former, but he is evidently ignorant of both. The very obscure and short account of these two plants does not, however, favour the idea that *A. cærulescens* was the species intended by Dale and Plukenet; yet it is singular that Ray should not once allude, either in the Synopsis or in his great work the 'Historia Plantarum,' to the alleged occurrence, by Gerarde, of the lavender-leaved mugwort on the Sussex and Hampshire coasts, even in the way of doubt or contradiction. As Tofield is the only modern authority for *A. cærulescens* in England, and even his testimony rests on the bare mention of his name by Hudson, the inference may be fairly drawn, either that some variety of *A. maritima* has been in every instance mistaken for the *cærulescens*, as we have seen to have been the case in this island, or that like *Echinophora spinosa* it may have occasionally appeared on our shores for a limited time, but from climatic causes have been unable to maintain a permanent footing. Both these plants inhabit the same botanical region, much to the southward of our own country, and both are recorded as having been found on the coasts of Brittany, but now

lost.* They are both maritime or sea-side species, and, as such, peculiarly fitted for transmarine migration, as their seeds would find a congenial place of growth the moment they were cast ashore; and if the climate of their new settlement were not too widely different from that of their natural soil, they might maintain their ground for some years under meteorological vicissitudes that must ensure their ultimate extinction, if not renewed by the same oceanic agency. Littoral or sea-coast plants are known to have in general a wider geographical range than inland ones, partly from the facility afforded them for migration by the waves, and partly from the greater equability of temperature which prevails along the shores of the ocean, or any great body of water. The same causes which extend the permanent will favour the accidental and temporary range of a species much beyond its proper average limits, and hence I would not be thought to refuse credence to the accounts we have of the occurrence of these and other plants upon our southern coasts, however great the probability that such accounts may be founded on errors of observation.

Tanacetum vulgare. On hedge-banks, by road-sides, and about the borders of fields, in various parts of the Isle of Wight. At St. John's, Ryde, sparingly. Near Lake Farm, Sandown. Plentiful by the road-side from Chale to Blackgang, and abundantly on a high bank betwixt Mottestone and Brixton. Hedges betwixt Niton and Whitwell, abundant in two or three places. Hedge-banks on the moors near Godshill. Dry pastures at Newchurch. Especially abundant on Vinnicombe Hill. Moor Town by Brixton, at Kingston, Sandford, and many other places. By Windmill Lane, Fareham, Mr. W. L. Notcutt, the only mainland station I happen to have on record, though I cannot suppose the tansey to be rare in that part of our county, any more than in this.

Filago germanica. In dry pastures, fields, waste and fallow ground, by road-sides, &c.; very universal and abundant over the county and Isle of Wight.

—— *apiculata.* In similar places with the last, and possibly not uncommon, but at present I can only record it in the following locality for Hampshire. In fields about midway between Farnborough station and Frimley; Mr. H. C. Watson! Having never seen this recent addition to the British Flora in a living state, and knowing it only through beautiful dried specimens sent me by the Rev. G.

* Near Nantes according to Bonamy. See Lloyd, 'Flore de la Loire Inférieure,' p. 333.

E. Smith, its first discoverer in this country, it would be presumptuous in me to offer an opinion on its claim to specific distinction. Yet I may be allowed perhaps to observe that an attentive perusal of the condensed descriptions of this and the three other assumed species its allies, *F. spatulata*, *canescens* and *eriocephala*, with Mr. H. C. Watson's remarks thereon, at p. 313, &c., of the present volume, has not inclined me to adopt the cautious and diffident conclusion he arrives at of the existence of three apparent species in this country; the characters seem too much interwoven or reciprocally applicable to each kind to be rendered satisfactory on paper to those who, like myself, have not possessed the opportunity of comparing them in a fresh or living state.

Filago minima. On barren, sandy or gravelly heaths, banks and pastures, but not very common, at least in the Isle of Wight. On St. George's and Bleak Downs. On Buck's Heath, between Kingston and Shorwell, and in a sandy field at the foot of Queen Bower. By Sibbeck's farm, near Niton. In Hayling Island, on the south beach, near the hotel, &c. Oakhanger, and most abundantly all over Short Heath, September, 1848. At Boldre, and doubtless in many other parts of the county.

Gnaphalium uliginosum. In sandy, gravelly and muddy spots, where water has stood, in half dried up ditches, and bare, damp places by road-sides, &c.; common over the county and island.

———— *syvaticum*, var. *rectum* (*G. rectum*, Sm.). In dry, sandy woods, thickets, pastures and heathy places; rare? "Frequent in the south-west parts of the Isle of Wight;" Mr. J. Woods, Jun., in 'Botanist's Guide.' There is doubtless some error in the above statement, as, so far is this species from being "frequent" here, that not a single specimen has ever presented itself to observation during reiterated endeavours to verify Mr. Woods's assertion in this and other quarters of the island more likely to afford it, the south-western side being for the most part open, arable land, with hardly a patch of copse or brushwood, or even a tree of any size to be seen. The plant is still a desideratum to the Vectian flora. West Wood, W. Meon, July 18th, 1848. Warnford; Rev. E. M. Sladen. Langrish; Miss G. E. Kilderbee! and probably in numerous other places within the county. N. B.—*Antennaria dioica* may not unreasonably be looked for on the high heaths and Downs in the north of Hampshire.

Doronicum plantagineum. In woods and pastures? At East Woodhay; Mr. J. E. Winterbottom in Curt. Brit. Entom. vol. xvi.

tab. et fol. 754 (sub nomine *D. Pardalianches*). Having been hitherto unable to obtain particulars respecting the leopard's bane in this its only recorded Hants station, I do not venture to pronounce it indigenous to, or even as certainly found within, the county; for East Woodhay is so close to the confines of Hants and Berks, that in the absence of specific information a doubt may arise whether the plant was gathered in the former or the latter. Both these points I shall hope to clear up at the proper season. Mr. Curtis's beautiful figure plainly, I think, represents the *D. Pardalianches* of E. B. vol. ix. t. 630, now referred to *D. plantagineum*. The synonyms of this last are much confused, and it is doubtful if ours be the Linnæan species so denominated. The genus *Doronicum* inhabits alpine or subalpine places in southern and central Europe, and not being plants of low and maritime counties it is not likely that any are truly native in the south of England, whatever may be the case with them in the "cold mountains of Northumberland," where Gerarde affirms they grow.

Cineraria campestris. On dry chalky Downs and pastures; rare? Near Basingstoke and Andover, Huds. Fl. Ang. On Flower Down, near Winton; Rev. Messrs. Garnier and Poulter in Hamps. Repos. !!! Abundantly on Stockbridge race-course, where the Bibury meeting is held; Dr. A. D. White. Warnford; Rev. E. M. Sladen. Dr. White kindly conducted me in May last to the station on Littleton or Flower Down, as it is called indifferently, and where this rare plant still grows in considerable plenty on the short turf of the yet unenclosed part of the Down, which is used by a well-known breaker-in of race-horses for a training ground. The authors of the catalogue in the 'Hampshire Repository' give Belhan, Isle of Wight, as a *trans-solentine* station for the *Cineraria*, the *locus* of which has to this day continued to be a profound mystery to myself and every one else in the island of whom I have made inquiry times without number, nor has the plant yet occurred with us to my knowledge in any other than the very apocryphal habitat just mentioned. If attention be not drawn to the very different root-leaves, its unassuming aspect may fail to attract notice from a hasty passer-by, who may set it down for an unhappy specimen of *Senecio erucifolius* with flowers reduced to their lowest terms as to number by uncongeniality of soil or situation. The affinity (perhaps too near) of its genus to *Senecio* might make such a blunder almost excusable in any person not familiar with the present species.

Senecio vulgaris. In waste and cultivated ground, fields, gardens, &c.; abundant everywhere.

Senecio sylvaticus. On dry sandy or gravelly banks, pastures and heaths, also in woods and waste ground, but not very common in the Isle of Wight. About Sandown abundantly, as on Royal Heath, Lake Common; about Bordwood and Alverstton. Ditch-banks on the moors north of Godshill in several places. Newport, along the road to Yarmouth. Sandy fields and banks under Bleak Downs, &c. Probably not rare in mainland Hants; its omission from that part of the field of our research is one of those accidental gaps in the county flora which a little more extended opportunity for observation than I have yet enjoyed will enable me to fill up at no distant date. N. B.—*S. viscosus* may be looked for with considerable probability in this county.

——— *erucifolius*, (*S. tenuifolius*, Jacq.) In woods, on hedge-banks, by road-sides and borders of fields; a prevailing species in the Isle of Wight, especially in the chalky districts. Plentiful betwixt Ryde and Brading, about Newport and in most other parts of the island. The Salterns, Caras, near Fareham; Mr. W. L. Notcutt: and probably common in the county, although I find no special mention of this species in my notes.

——— *Jacobæa*. In moist meadows and pastures, on ditch-banks, waste ground, and by road-sides; common over the entire county and island.

——— *aquaticus*. In wet places, meadows, ditches, &c., very common.

Carlina vulgaris. In dry hilly, sandy, or heathy pastures, fields and rough rocky waste places; very common in the Isle of Wight and I believe the county generally. Abundant in Luccomb Land-slip, and in many parts of the Undercliff. At Blackgang, and on St. Catherine's Down, &c., plentiful. Maindell chalk-pit, Fareham; Mr. W. L. Notcutt.

Centaurea nigra. Everywhere abundant in woods, thickets, pastures, hedges, waste ground, and by waysides. Var. β . *radiata*. As frequent, if not more so than the rayless form over a great part of the Isle of Wight, particularly on the chalk; very common in Undercliff, as about Ventnor; between Shanklin and Bonchurch, at Carisbrook, &c. Mr. Babington distinguishes this in the Manual from a similar plant with radiate outer florets, which he refers to *C. nigrescens* of Willdenow, on the authority, apparently, of Koch. Whether we possess this last as well as the other in the island, or if both are but states of *C. nigra*, I am still in doubt. I had always supposed our Hants radiated black knapweed might be Willdenow's *nigrescens*, but

it would seem we have something in England still different, and which is the proper *nigrescens* of that author. This I have either not fallen in with, or am unable to distinguish by description from the var. *β. radiata* of our common *C. nigra*. With regard to this latter form, I have been at much pains to find a constant mark apart from the sterile outer florets, by which to distinguish it from the more normal state of *C. nigra*, but without success; the differences as laid down betwixt *C. nigra* and *nigrescens* in the Manual convey no very clear conception to my mind of their dissimilarity; the determination of the radiant plant of this island to its proper place, if a species or variety, must of course await a definition of *C. nigra* and *nigrescens* less obscurely enunciated than it is at present. I hardly know how far our var. *β.* is common or otherwise on the mainland of Hants, not having attended to the point. At Clanfield; Mr. Pamplin in New Bot. Guide. Mansbridge, near Southton. I once picked it with white flowers near Niton, Isle of Wight. Nearly all the alleged habitats for *C. Jacea* in Britain have turned out on inquiry to be our radiate variety of *C. nigra*. Are the Irish stations in *Fl. Hibernica* anything else but this form? Was more than a single plant of the true *C. Jacea* found in Sussex? And lastly, what is the genuine *C. Jacea*?

Centaurea Cyanus. In corn-fields and other cultivated ground; very common throughout the island, and I believe the entire county.

——— *Scabiosa*. On banks, by road-sides, about hedges, borders of fields, and amongst corn; very common, but most abundant on the chalk. Heads of flowers flesh-coloured, outer radiant florets white. In a field near Yarmouth, a single specimen, September, 1839. Chalky fields above Sandown Bay, July, 1848. By St. Lawrence's church, August, 1842; Rev. Wm. Thickens!!! A very handsome variety, well worthy of cultivation. All the florets in the head white; near Westover, Isle of Wight, August, 1843.

†——— *solstitialis*. In cultivated land amongst corn, clover, lucerne, &c.; also along the borders of fields and in waste ground; very rare, and probably not indigenous to any part of the county of Hants. Found a good many years ago by my estimable friend the Rev. G. E. Smith, in a newly broken up field by the road-side above Bonchurch, growing to all appearance truly wild amongst *Artemisiæ* and other *Compositæ*! Sought there unsuccessfully by me in 1837, and not since observed in that or any other part of the island, nor have I received intimation of its occurrence on the mainland of Hants. Usually considered, and perhaps justly, as an imported

species in this country, but being rarely abundant, like many other annuals, seldom continues long in one spot, but shifts its station within certain limits, or disappears entirely. The late Lady Blake informed me it is to be found most years about Barton and Rougham, near Bury, but scarcely in the same field for many successive seasons.

Centaurea Calcitrapa. In dry pastures, waste places, on commons and along road-sides, on chalk, gravel, or sand; rare. Road-side between Nilton and St. Lawrence (with white flowers), September, 1833; Mrs. Dixon. Not now to be found there (Mrs. D. thinks from the road having been *improved*), or so far as I can ascertain, in any other part of the Isle of Wight. Peel Common, near Fareham, and on Portsdown Hill, near the Nelson Monument; Mr. W. L. Notcutt!!! I looked for it in vain on Portsdown, but found it in plenty on Peel, and still more abundantly on Chark Common (which is but a continuation of the former towards Stubbington), forming large bushes, and still in ample flower, October 13th, 1848. It probably grows in many other places in mainland Hants, towards the coast, but is rather a plant of the eastern or "Germanic" than of the western or "Atlantic" type of distribution, or perhaps should be regarded as making a transition from that to the purely "English" type. It is apparently wanting over by far the larger portion of England, inclining more and more to the eastern side of the island as it advances northward, and only in the extreme south attaining the meridian of Devon on the west. I have gathered it in Jersey, and remarked it abundantly many years ago in Sussex, on this side of Brighton. I have likewise seen it in Suffolk, near Ipswich, and in June, 1847, gathered it in great abundance at Norfolk, in Virginia, where it is completely naturalized on waste ground about that now somewhat elderly American city.

Arctium Lappa. In waste places, woods, by way-sides and margins of fields, &c.; very common. Var. α . *A. majus*, *Schkuhr*? By Shanklin farm, &c. Var. β . *A. minus*, *Schk.*? *A. Bardana*, *Willd.* Much the more frequent variety of the two. Ventnor Cove, &c.; plentiful. These are very possibly, as Mr. Babington regards them, distinct species, a position I am rather inclined to accede to than controvert; but, not having yet studied the two sufficiently to be convinced that such is the case, and still seeing cause for doubt and suspension of judgment, I prefer risking the commission of the minor error of undue combination to the far greater evil of unnatural separation. The prominence given to marked yet dubious forms by special record under the head of varieties, suffices for their discrimi-

nation as effectually as exalting them to species, with this advantage, that should their claims to the higher distinction be proved untenable, no violence is done to Nature, or additions made to the vast heap of discarded synonyms which now burden the books; indelible memorials, too often, of haste, vanity, or prepossession.

Onopordon Acanthium. In dry waste places, by road-sides, on hedge-banks and amongst rubbish. Extremely rare, if not now quite extinct, in the Isle of Wight. Sparingly on Ryde Dover prior to 1842, since then completely extirpated by building. A solitary stunted specimen in the middle of a clover lay at Thorley, September 12th, 1842, most likely brought in with the seed. I have not met with it since in any part of the island. Apparently scarce in the county generally, as I have only the few following stations on record. A single specimen picked by myself by the road-side near Weyhill, June 26th, 1848. Near Southampton; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Breamore Downs; Miss May.

Carduus nutans. In dry waste ground, rough, barren fields, pastures and fallows; plentiful in calcareous soils in most parts of the county. Abundant on the sides and summits of most of the high Downs in the Isle of Wight, and in old chalk-pits. The elegantly drooping heads of flowers of deepest crimson, from their size and stellately spreading involucral scales, are peculiarly handsome and conspicuous. Their scent is agreeable, but to my perceptions not exactly such as to entitle this species to the name of musk thistle.

——— *acanthoides*. In woods, thickets and on hedge-banks, also (but more rarely with us) in dry, open waste places, fields and pastures. Not very general in the Isle of Wight. Near Asheys farm, and about Arreton. Betwixt Shanklin and Bonchurch. Plentiful in woods at Swainston. About Knighton,* and near Cowes, &c.; usually in quantity where it occurs, but certainly quite local here. I have no mainland station as yet to give for this species, which nevertheless I cannot think is likely to be uncommon in that part of the county. Unfortunately there are certain natural orders and genera, such as Cyperaceæ, grasses, some Compositæ and others, which collectors and observers are too apt to pass unnoticed; hence my county list is partially deficient in these tribes for want of that infor-

* An old manorial residence near Newchurch, now in ruins, sometimes called K Knighton, in contradistinction to Niton or Crab Niton, at the back of the island, which sobriquet this last has gained from the gigantic crustaceous fishes on the coast, the admiration of all gastronomic tourists.

mation I am compelled in a great degree to rely on others for obtaining as regards the mainland, though for the island I trust they will be found pretty completely worked out by personal research. The specific name of the plant now under consideration has no doubt been given it from the strong resemblance of the first year's root-leaves to those of *Acanthus*. Ours is usually the var. *β. crispus*, and apparently biennial.

Carduus tenuiflorus. On hedge and ditch-banks, in dry waste places, and on the high chalk Downs abundantly in various parts of the Isle of Wight. Profusely below the rocks near Mirables, at Blackgang, &c. On the chalky Downs in W. Medina in plenty; Mr. W. D. Snooke!!! Everywhere about Freshwater; Mr. Dawson Turner in Fl. Vect.!!! This species delights to grow along the earthen fence-banks which stretch across the summits of our highest Downs, and which it sometimes covers in dense patches for many yards together. Between Stubbington and Hill Head; Mr. W. L. Notcutt. Seldom found far inland, but probably not rare along the Hampshire coast. Filaments densely hairy below the anthers.

——— *lanceolatus*. A common and troublesome species everywhere in pastures, waste places, woods, by road-sides, on ditch-banks, &c. Mr. Gardiner ('Flora of Forfarshire') holds this to be the true national badge of Scotland, and to none of our thistles is the motto *Nemo me impune lacessit* more applicable than to this, from the extreme pungency of its long, slender, but formidably acute spines.

——— *eriphorus*. In dry hilly pastures on chalk or limestone, but very local. Between Luccombe and Bonchurch; Mr. J. Woods in Bot. Guide: and where, on the rough broken ground across which the foot-way from Shanklin passes, it still grows in some plenty; as also towards the Bonchurch extremity of East End (Luccombe Land-slip) in several places rather abundantly. About Ventnor and Bonchurch here and there. In considerable plenty on chalky slopes betwixt the woods at the head of the valley between Apes Down and Rowledge, 1843 and 1845. Fields near Buccombe Down on the east side, nearly above Idlcombe, in some quantity, July, 1845. Bere Forest and elsewhere in the county; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Near Overton, Popham Lane and Basingstoke; Mr. E. Forster, Jun. in Bot. Guide. The most beautiful and conspicuous of British, if not of European thistles; the globose involucre often the size of the largest orange, interlaced with a web rivalling the gossamer in delicacy, present a singularly elegant

appearance in conjunction with the bright purple of the florets and the exotic aspect of the large and formidably armed leaves. With us here, the species is always found at some elevation. I have never remarked it in the lower and flatter parts of the island.

Carduus arvensis. By road-sides, in rough, waste places, fields, pastures, and neglected gardens, far too abundantly; an execrable pest in damp corn-fields and cultivated ground, and now as well known and detested in the United States, where it goes universally by the name of Canada thistle or cursed thistle, having been supposed to have migrated to that country from Europe, and thence to have spread itself southward and westward with the progress of agriculture and colonization.

———— *palustris.* In moist meadows, pastures, woods and thickets, on ditch-banks, and in other damp or wet situations; plentifully. This and *C. arvensis* occur here and there with the heads of florets white.

———— *Forsteri.* Damp or boggy places; very rare. A single plant was found growing some years ago by the Rev. G. E. Smith between the Needles (Groves's) Hotel and Alum Bay, with a dried portion of which he kindly presented me. Mr. Smith's opinion, now become the general one with botanists, is, that *C. Forsteri* is a casual hybrid betwixt *C. palustris* and *arvensis*. I have never seen the plant living, and therefore keep it apart in deference to those who still hesitate to consider it a mule production, although pretty well convinced in my own mind that it is merely such.

———— *pratensis.* In low, damp or boggy meadows, on moist heaths, pastures, and in wet marshy woods and thickets, in various parts of the Isle of Wight and county, but not very common; usually, if not invariably, at or near the sea level; never in elevated or hilly spots, however humid, so far as I have remarked. Near Ryde, by Quarr Abbey and Fishbourne. Easton Marsh, Freshwater Gate. Near Cowes, Northwood, Newport, Freshwater and other parts of the island, in some places very abundantly. I do not know how far it is common or rare on mainland Hants. I have found it frequent about Southampton in dry ground on the common, as also in a wet meadow at Netley. Titchfield Common; Mr. W. L. Notcutt. If less showy than some others, this species excels all our native thistles in the graceful simplicity of its elegant tassel-shaped flowers; innocuous and unobtrusive it repels not approach with the keener weapons of its tribe; nor, forsaking its native unproductive bogs for the fertile

and well-drained meadow, does it often incur the ban of the neat and diligent husbandman.

Carduus acaulis. An abundant and rather troublesome plant in dry upland meadows and pastures, throughout the county and Isle of Wight. Extremely common on all our high chalk downs, to their very summits. The state producing a stem several inches high I have found near Swainston, in this island. The heads of handsome flowers, sprinkled over and closely sitting on the short elastic turf, show like tufts of crimson silk on a ground of green velvet. The very rare *C. tuberosum*, found in the adjoining county of Wilts, may reward a diligent search in the thickets that partially clothe the sides of our Hampshire downs.

Silybum marianum. On dry hedge and ditch-banks, by road-sides, and in waste ground at the outskirts of towns; more truly wild in woods, thickets, and on our elevated downs, here and there abundantly, but not general. On Ryde Dover, and in St. John's Street, Ryde, in small quantity, but now, I believe, extinct in both places. Truly wild in various spots along the Undercliff; in rough wooded ground, as between Ventnor and Bonchurch, not far from the Pulpit Rock, where it used to be very frequent and luxuriant some years ago, when that part was in a state of nature, and unencroached upon by buildings as at present. Under the cliffs above the road near Mirables, and on the edge of the down at the top of the cliff above Woolverton, near St. Lawrence, in considerable plenty in both stations. Rough pasture ground at Niton, and by the road-side near the Sandrock Dispensary, as also occasionally in many other parts of the island. In some of its stations it may have resulted from long antecedent cultivation, but the milk thistle is rarely to be seen in our modern gardens, at least here, although it is said to have been once grown for the table, and eaten in the manner of artichokes.

Serratula tinctoria. In woods, thickets, and dry, heathy, bushy places; common. In Quarr Copse, Shore Copse, Streud Wood, Firestone Copse, and elsewhere about Ryde in plenty. Woods at Wootton, Cowes, Yarmouth, Newtown and other parts of the island very frequent, and I believe equally so over the entire county. I have several times known the saw-wort mistaken for a *Centaurea* by young or inexperienced botanists, to which genus it bears certainly a deceptive resemblance in habit and inflorescence. A variety with white flowers and uncoloured involucreal scales I picked on a bank close to Whitwell, Isle of Wight, September 6th, 1845.

Lapsana communis. In waste and cultivated ground, hedges,

woods, &c., everywhere very common. Dr. Salter found a specimen of this plant betwixt Morton and Adgeton, near Brading, with a very close, erect, corymbose panicle, and the rays of the very numerous heads of flowers imperfectly developed. Var. β . Leaves deeply and coarsely dentate and angular. On a bank by the road-side from Aldermoor to Haven Street. Near Strond Wood, Isle of Wight, July, 1841. A remarkable, but possibly not very uncommon form, with the terminal lobe of the leaves large, angular, cordate, acute, approaching to *Lactuca muralis* or *Chenopodium hybridum* in outline.

N. B.—*Arnoseris pusilla* (*Lap. pusilla*, Willd.) will, it can hardly be doubted, be found to inhabit the county, though hitherto unrecorded. Mr. H. C. Watson observed it profusely in some sandy fields between Frimley and Chobham ridges, in Surrey, very near the boundary line betwixt that county and this. The extensive sandy tracts north of Petersfield, towards Farnham, may be expected to yield this and other sand plants, as *Apera Spica-venti*, and perhaps *A. interrupta*, the latter a recent and highly interesting addition to the English Flora.

Cichorium. Intybus. In corn-fields, by road-sides, and on chalky or gravelly banks and pastures; decidedly uncommon in the Isle of Wight, and apparently not less so in the county generally. About the ascent of the hill leading up to Hampstead farm (Mrs. Nash's), near Yarmouth; Rev. James Penfold and Rev. Wm. Darwin Fox !!! By the road-side between Idlecombe and Roughborough farms for nearly 100 yards; Mr. G. Kirkpatrick !!! Chalky hollow in a field behind, and nearly between Plash and Buccombe; W. A. B. Fields near St. Lawrence; Mr. G. S. Gibson (Phytol. Nov. 1843). Stray specimens occur amongst corn and by road-sides occasionally in most parts of the island. Observed, but very sparingly, about Porchester and at Wymmering, 1848. Droxford, Wheely; Rev. E. M. Sladen. Road-side near Bishop's Waltham; Miss L. Sibley. Andover; Mr. Wm. Whale. Fontley; Mr. W. L. Noteutt. I have seen this plant grown on a small scale for feeding cows, at Niton, and as an adjunct to or a substitute for coffee, the roasted roots are extensively employed on the continent, where the species is cultivated in quantity as chicory, for that single object.

Hypochaeris glabra. On dry sandy or gravelly heaths and pastures, also in cultivated fields, amongst turnips &c., in a similar soil; rare? In a sandy turnip-field near Cliff farm, by Shanklin, along the footway to Apse and America, in considerable plenty, October 14, 1847. On Short Heath, Oakhanger, near Selborne, September, 1848.

With *Filago apiculata* in a field on the left of the road from Farnborough Station to Frimley (Surrey), on the Hants side of the stream (Blackwater River) that divides the two counties; Mr. H. C. Watson (in litt.). Perhaps not so uncommon a plant with us in Hants as it appears to be, since the eye is not readily attracted by it, excepting when specially on the look-out for its occurrence, owing to its small size and resemblance to other and commoner species of the order, and above all, because its minute yellow heads of flowers only open, as Curtis observes, at 9 A. M., and close about 2 P. M.; whereas those of *H. radicata* do not observe the same brief vigils, but continue expanded throughout the day.

Hypochaeris radicata. Very common almost everywhere in meadows, pastures and waste places, on banks and along hedges, &c.; often a troublesome weed on lawns and grass-plats. Var. β . Leaves glabrous and shining, somewhat fleshy. Common on the banks of débris in Sandown Bay, between that village and Shanklin, August, 1842. Involucres sometimes quite smooth, but most usually hispid, with erect whitish hairs or bristles. N.B. *Achyrophorus* (*Hypochaeris*, L.) *maculatus* should be looked for on chalky pastures and downs in this county, with the greatest likelihood, perhaps, of success towards its northern boundary.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
January 30, 1849.

(To be continued).

Botanical and Conchological Specimens.

THE North of England Agricultural School is situated at Great Ayton, near the market town of Stokesley, in the beautiful district of Yorkshire called Cleveland, which extends along the extremity of the vale of the Tees and the shore of the German Ocean to Whitby. It was established by the Society of Friends, in 1841, for the education of boys and girls not members of that Society, but who had some claim on their care, from their ancestors having been members, or their parents attending the meetings of Friends. The agricultural pursuits of the scholars occasioning their being a considerable portion of time each day in the fields and gardens, the friends of the School thought it desirable that the study of Botany should be intro-

duced among them, being well aware that the neighbouring mountains and valleys, and the shores of the ocean, abounded in the indigenous plants of our island. They commenced in the spring of 1844; and such was the earnestness with which they took up the pursuit, that in the summer and autumn of 1845 their dried specimens of flowering plants were so much admired, that many friends expressed a desire to purchase them. Since that time many sets have been sent out, and the proceeds expended in purchasing botanical books and periodicals, in printing catalogues, and excursions to the shores of the North Sea and the vale of the Tees.

GEORGE DIXON.

Ayton School, February, 1849.

[For further particulars see advertisement on wrapper of April 'Phytologist.'—*E. Newman.*]

The Case of the Robertsonian Saxifrages, between Mr. Andrews and Mr. Babington. By HEWETT C. WATSON, Esq.

THE matter at issue between Mr. Babington and Mr. Andrews, although several times alluded to in the 'Phytologist,' has never been clearly or connectedly stated; and it is rendered quite obvious by the strangely irrelevant paper of Mr. Backhouse, in the last No., that the case is totally misunderstood by that gentleman at least. The strictly scientific point of the case may now be considered as settled; Mr. Babington having himself at length admitted the correction of his too hasty statements, as made by Mr. Andrews. But the former botanist's attempt to defend his own proceedings in the matter, has such an important bearing on what may be aptly called the ethics of science, that I feel strongly induced to offer a more explanatory version of the case than has hitherto appeared in one connected statement. In attempting to epitomize the circumstances, I may fail to give them with that literal exactness and fulness which would be secured by quotations and documentary evidences, but I trust that the following will be found a substantially correct representation of the matter.

Some years ago, Mr. Babington published a paper in the 'Annals of Natural History,' in order to show or state that the Irish plants of *Saxifraga umbrosa* differ in a peculiar manner from the Pyrenean examples of the same species. That first paper was afterwards (1844)

followed by a second, to the same general purport, but extending the alleged peculiarity to the leaves of *Sax. hirsuta* and *Sax. Geum* likewise. The ultimate statement of Mr. Babington amounted to this; namely, that on the Pyrenean examples of the three species mentioned the leaves are always obtusely crenate; whereas, on the Irish examples of the same three species the leaves are always acutely crenate, or dentate, or serrate;—say, for sake of brevity, crenate in the one country, serrate in the other.

Taken by itself this alleged difference between the leaves of the Irish and Pyrenean Saxifrages was but a trifle, although a curious trifle, in descriptive botany. But by its direct bearings upon large questions in botanical geography, touching the derivation of distant floras and the migration of species, it assumed a character of much greater importance. A more extended scrutiny by other parties, so as to confirm or to correct the statements of Mr. Babington, whichever might be found necessary, became very desirable; at any rate, desirable in my own view of the matter, if not in the eyes of other botanists.

For Ireland, the desired scrutiny was happily undertaken, and prosecuted ably and zealously by Mr. Andrews. The results of this botanist's researches and experiments were in direct contradiction to the statements made by Mr. Babington. The most ample evidence was procured by Mr. Andrews, to prove that the alleged Pyrenean forms of leaf occurred on the wild Irish plants, and were also produced on plants in gardens, raised from Irish seeds. Moreover, what is highly important in such matters, Mr. Andrews did not simply make assertions without visible proofs of their truth and accuracy; but, on the contrary, he distributed seeds, living plants, and dried specimens, freely and numerous, to other botanists.

Fortunately, also, it happened that Englishmen were collecting the Robertsonian Saxifrages, about the same time, on the Pyrenees. The collections and observations of Dr. Southby and Mr. Spruce brought out a considerable store of evidence to prove that the alleged Hibernian forms of leaf were to be found, if looked for, on the Pyrenees also. Their proofs do not appear to have been sought or collected with a view particularly to the question agitated, and are therefore less ample and complete than those of Mr. Andrews; but they are quite sufficient to establish the fact.

The general result is, that crenate and serrate leaves are produced in Ireland, and that crenate and serrate leaves are produced on the Pyrenees. Mr. Babington's apparently curious discovery turns out

to be simply an instance of too hasty generalisation on the part of that botanist,—accurate so far as it went, no doubt; but going only just far enough to diffuse error, instead of establishing truth.

While the inquiry might be considered still pending and unsettled (1845), Mr. Andrews made a communication on the subject, through Professor Allman, to the British Association, assembled at Cambridge, in which he stated the results of his own investigations, as views “altogether in opposition to those advanced by Mr. Babington, and published by him in the ‘Annals of Natural History.’” I am told that Mr. Babington was present, but made no remark at the time, when the paper from Mr. Andrews was laid before the sectional meeting. And I am also informed, that a copy of Mr. Andrews’ paper was given by Professor Allman to Mr. Taylor, for publication in the Annals. But the said paper never appeared in that periodical.

Such are the facts of the case, if I understand them rightly. And in forming a judgment on the matter, it is proper to keep in mind that Mr. Babington had circulated a grave error through the pages of the Annals, and had deliberately re-affirmed and extended the original error by a second paper on the subject. Also, be it remembered, that the control or management of the botanical portion of the Annals is undisguisedly placed in the hands of Mr. Babington, whose name appears on the cover of the periodical, and his initials appended to many of the articles.

Now, writing as an individual, and expressing an individual opinion, I will say, it appears perfectly clear to my judgment, that Mr. Babington ought to have corrected his erroneous statement in the pages of the same periodical through which he had given circulation thereto;—or, failing his own inclination to do this, that Mr. Andrews ought to have been allowed to make his counter statement in the pages of that periodical. So far as the Annals went, Mr. Babington’s error continued to stand as an unrefuted and scientific truth, eminently calculated to mislead any botanist who might see and rely upon it. The partial antidote of a counter statement having appeared in the ‘Phytologist,’ in a Report of a meeting of the Botanical Society of London, or incidentally in a paper on a different subject, could not release an individual from the obligation (if such an obligation exist) of correcting his own published statements, ascertained to be untrue in reality. The antidote, moreover, was put forth by another party, and in another periodical, *because Mr. Babington did not make the correction himself.*

While I thus express my own individual opinion, and, in so doing, adopt the very words of the *Phytologist's* correspondent "C.", that there was "a scientific, if not a moral, obligation" on Mr. Babington to have corrected the untrue statement, I am of course quite ready to *admit the right* of Mr. Babington, and of any other botanist, to hold a dissentient opinion, to express it, and to act upon it, if he so think fit. But I do not *covet* the views of science, or the sense of truth and right, enjoyed by any man who feels himself not called upon to correct grave errors which he has thrown into circulation, where there is strong probability that other persons may be misled by them. I call the error a grave one in the case before us, because of its important bearings upon botanical geography.

I cannot well guess what may be the opinion of readers of the '*Phytologist*,' on the scientific obligation above alluded to. It has, however, been the recognized practice in the '*Phytologist*,' to allow full freedom in the refutation of any, even very trifling, errors which have appeared in its pages, whether editorial or otherwise. And this, I believe, will always be the practice and the wish of all sincere men, lovers of scientific truth.

But I *can* guess, with a confidence approximating to positive certainty, that if the question were laid before any body of men habitually devoting their thoughts to mental or ethical science, that their views would coincide with mine, on the point of the suggested obligation; just as Mr. Babington could guess, with the utmost confidence, that a body of botanists would join with him in pronouncing cereals to be grasses, although a non-botanical farmer would rather pronounce a *Trifolium* or a *Medicago* to be grass.

Mr. Babington stated in the '*Phytologist*' for this month (*Phytol.* iii. 474) that he knows nothing concerning the paper sent to be inserted in the *Annals*. He and I evidently must think and feel very differently. I should have made it my duty and desire to know something about a paper which refuted, by facts, any considerable error that had been sent into public circulation by myself.

I intrude in the matter at issue, because Mr. Andrews kindly communicated to me the results of his investigations and experiments, as they were obtained, and explained the circumstances of the case; and "C."s acquaintance with the affair has been derived from mine.

HEWETT C. WATSON.

Thames Ditton, April 3, 1849.

Reply by the Reviewer "C." to certain Errors of Representation, on the part of Mr. James Backhouse, Junior, in 'Phytologist' iii., pp. 475-6.

IN the 'Phytologist' for April first, as above referred to, an article appeared from the pen of Mr. James Backhouse, which was unfortunately rendered most appropriate to the date of publication, by his strictures being founded upon, and adapted to, an utter misconception of the real question at issue. It is much to be regretted that his odd mistake was not pointed out to Mr. James Backhouse, so that he might have altered the title and first paragraph of his communication, in such manner as to escape the justifiable charge in retort, of bearing false witness against C. through sheer carelessness and inattention on his own part. Of wilful misrepresentation it would be absurd to accuse Mr. Backhouse. But surely, before publishing anything like strictures upon another party, he was bound to know whether his representations were true or false.

The title given to his paper, and the representation and comments hazarded in the first paragraph of it, are evidently derived from an utterly erroneous fancy that the question between Mr. Babington and Mr. Andrews, as alluded to by C., had been merely a matter of opinion or inference respecting the *specific distinctness* of the Robertsonian Saxifrages. But the real point at issue between those botanists, and the point to which C.'s remarks were applicable, was a matter of fact; namely, the similarity or difference *in the serratures of their leaves*. The words of C. were so brief and clear as scarcely to allow the shadow of an excuse for mistaking, and consequently misrepresenting them. Here they are:—

"The individual writer of this notice can fully confirm the statements of Mr. Andrews, *in respect to the very variable forms and serratures* of the leaves of the Robertsonian Saxifrages of Ireland; as well as their general identity, *in these respects*, with examples of the same species from the Pyrenees."

Neither in the passage here quoted, nor in any of the after comments made by C., in reference to the facts which it involves, was there a single word about "*specific distinctness*." Nevertheless, Mr. Backhouse has volunteered the publication of strictures upon the comments of C., under the following title given to his paper:—

"A few Remarks on the 'Proof' of C. C. Babington's 'Error' *respecting the specific distinctness* of *Saxifraga Geum, elegans, hirsuta, &c. &c.* By James Backhouse, Jun.," Esq.

And in the first paragraph of the article, he represents C. as maintaining that there is evidence "sufficient to overthrow the specific distinction between umbrosa, elegans, hirsuta, and Geum," and "to require" a retraction and declaration from Mr. C. C. Babington, the nature of which is not clearly expressed in the rather confused and ungrammatical paragraph referred to, but apparently a declaration that he was in error in supposing the species distinct. C.'s reply to this is, *first*, that he said nothing whatever about specific distinctions or specific distinctness; *secondly*, that he never called upon Mr. Babington to retract any opinion or declare any error in regard thereto.

In reference to the real question towards which the comments of C. were directed, Mr. Babington has himself admitted that his former statements are untenable. C.

On the Disappearance of Plants from Localities once assigned to them. By EDWIN LEES, Esq., F.L.S.

THE exploring botanist who delights in out-of-door rambles, is often perplexed by the non-appearance of plants in their recorded places of growth; and if his temper, like ill-dried specimens, be "none of the best," he perhaps, orally or in print, vents an imprecation on the unlucky person who is conceived to have misled him, and who, almost with a sneer, is at once adjudged to be no authority. The more candid observer, conscious of the almost yearly changes that occur in the localities of many plants, will not be so ready to decry the remarks of his predecessors, but be willing to credit them, unless in the case of actual specimens wrongly named. But observations of changes in the habitats of plants, and of their disappearance from old stations, require to be more frequently journalized than they are. I have been led into these remarks from a statement of Dr. Bromfield's, in his interesting 'Catalogue of the Plants growing wild in Hampshire.'

Dr. Bromfield (Phytol. iii. 494) mentions that he has been unable to find *Gnaphalium sylvaticum*, var. *rectum*, in the Isle of Wight, though stated to be "frequent in the south-west parts" of the island, by Mr. J. Woods, jun. Now my own experience of this plant in Worcestershire and Gloucestershire, goes to prove that it may be *most abundant* in some seasons, and then not be visible again for a

long time. I have in my herbarium a specimen gathered at the base of the North Hill, Great Malvern, prior to 1830, yet for years afterward I could never find any more specimens; until in 1841, in company with Mr. Moggridge, of Swansea, several hundreds occurred half-way up the adjoining hill, all growing together. I have been often times since to the spot to see if the colony continued there, but they have all taken flight. Some years since this *Gnaphalium* used to grow plentifully in Shrawley Wood, near Worcester, but it is scarcely to be found there now, or must be very closely sought for. I remember an excursion I once made on the Cotswold Hills with Professor Buckman, of the Agricultural College, Cirencester, when, in a field on Clevedown that had recently been made arable, the profusion of *G. sylvaticum* that covered the ground on the declivity was astonishing; but the next year the Professor informed me very few plants remained, and the third year every vestige of them was gone. I have since then been on the spot, but neither there nor anywhere about the vicinity could the plant be met with on the most diligent search. A similar fact occurred to the view of my friend Mr. William Mathews, jun., of Park Hall, near Kidderminster, the Secretary of our Botanical and Naturalists' Club, who, the year before last, noticed hundreds of *G. sylvaticum* in a field recently converted from pasture to arable. Probably now none could be found, nor had they been seen there previously.

Such appearances doubtless occur with other species, and it is interesting to note them, for "Saturnian times return;" and I have known plants revisit their old stations after long absence. It does not appear very easy to determine whether, in the case of fresh turned up soil, the seeds had long lain dormant there, or whether elemental action had brought them from a distance; perhaps both causes may operate. But the migrations of plants being often very capricious, and even unaccountable, as daily experience shows, I think the observations of former labourers in the field ought not to be disregarded as doubtful or erroneous, or dismissed at once, as they sometimes are by closet-reasoners, as unlikely.

Several plants are recorded by Dr. Stokes, in his edition of Withering's Botany, 1787, as growing near Worcester, which are not now to be found there. Among these is *Lepidium ruderales*, "on the side of the Severn above Worcester," which I could never meet with. But in 1847, botanizing with my friend Mr. Baxter, of the College School, in this city, on the banks of the saline Droitwich canal, we most unexpectedly came upon a rough, pebbly piece of ground,

looking just like a sea beach, and close to a bridge, where were seven or eight, if not more, of the ruderals growing. I left three or four that were in seed as a stock, yet last year no fresh ones had sprung up, and probably a long time may elapse ere it appears for botanical inspection again in that place.

Cardamine impatiens is in some districts a rare plant, and generally affects hilly spots; but three years since a new embankment of earth was raised on the side of the river Teme, near Powick, in this county, with the view of protecting the meadows from sudden floods, and the following year *C. impatiens* grew most luxuriantly and profusely on and about this mound. Yet last year, on visiting the spot and looking closely about, not a plant of the *impatiens* was anywhere observable.

I have myself been called to account by several friends for the record of some plants in my 'Botany of the Malvern Hills,' which they could not find in the spots there designated. It is really very hard to be held responsible for the vagrant habits of plants; but let investigators get upon their trail, and take them up if they can. One vagabondizer I at least detected before it had got very far away. *Erodium maritimum* grew for some years to my observation on a rock at the entrance of "the winding valley" between the North Hill and the Worcestershire Beacon. When I left Malvern, in 1843, the plant was certainly there, where I had often gathered it; but the second year after, it was gone from its position, and I actually detected a new colony two miles from the hill, on the side of the road towards my new residence. They were certainly on my track, and I believe the *Erodium* is now off on its travels again! But in the old station it is no more to be seen.

Littoral plants may remain in an inland county as relics of a past state of things; and this is certainly the case as respects Worcestershire, which, though now out of reach of the tidal wave, had formerly brackish backwaters, more connected with high tides than they are at present. Such are the Longdon marshes. Here *Scirpus maritimus* yet grows, and I have gathered *Gastrium lendigerum* in the same vicinity. Also *Bupleurum tenuissimum* and *Samolus Valerandi* near Worcester; and *Alsine rubra* β . *media* (not distinguishable at sight from *A. marina*), *Glaux maritima*, in great profusion, and *Sclerochloa distans*, on the banks of the salt-water Droitwich canal. Yet a botanist unacquainted with the peculiarities of the county might consider the occurrence of such plants unlikely, and as originating in error. Indeed some of them cannot at all times be found. *Cenanthe pimineloides* appears to me to mark the boundary of a line of backwater

marshes that in past times came up nearly to Worcester, and within three miles of the Malvern chain. Yet this plant, generally so plentiful within its peculiar limit, in some seasons is scarcely to be met with, and a "wandering botanist" happening to come at such a time, might feel distrust as to the occurrence of the plant at all in the vicinity.

Flowers indeed, under particular conditions, seem to *swarm* like insects, and their assembled splendours are seldom to be seen again under precisely similar circumstances. I remember being in Wyre Forest, more than fourteen years ago, with my acutely observant friend the Rev. Andrew Bloxam, when the glades of the forest were most splendid with innumerable flowers of the elegant *Cephalanthera ensifolia*, indeed so brilliant an exhibition I scarcely ever saw; and hundreds of plants might have been taken without being missed from the scene. But on my last visit to the forest, in 1847, with some friends, who had hoped with myself to see similar beauties, the scene was so deplorably changed, that, though precisely at the right time of flowering, our utmost efforts produced only two of the *Cephalanthera*, after a long search. No doubt the felling of portions of underwood on forest ground has a good deal to do with the appearance of plants, which are completely choked by the growth of a dense mass of shrubs; and the particular spot where some rare plants grow may lie blocked up in this way for many years. The late Mr. Moseley sent *Festuca sylvatica*, from Shrawley Wood, to Sir J. E. Smith, reporting it as not rare in the wood, but only springing up and flowering when the coppice was cut down. I have a specimen of the plant from Shrawley, by the kindness of Miss Harriett Moseley, not now residing there; and yet, strange to say, though our Worcestershire botanists have again and again investigated the wood, all have hitherto failed to re-discover the plant, which yet doubtless is still lurking there.

Drainage changes, however, really banish plants altogether, unless a deep ditch or pool happens to be left where they can take shelter, secure only in utter obscurity. If this is not the case they perish, and the record of their former existence only remains; and yet perhaps that ought not to be forgotten, as telling of what the country once had. *Hypericum elodes** is mentioned by Dr. Stokes, in the edition of *Withering* I have before adverted to, as growing on "Birmingham Heath," where enclosures and buildings have long destroyed it; yet still almost within the dense smoke of Birmingham, on Mosely

* This plant is now entirely absent from Worcestershire.

Wake Green, and within the boundary line of Worcestershire, *Osmunda regalis*, *Equisetum sylvaticum*, and *Rubus suberectus* grow; as, though the green is now entirely enclosed and cultivated, a few plantations have been made where these bog plants have found a last shelter. Such is not the case at Feckenham Bog, often mentioned by Purton, and where, within thirty years, peat was cut and stacked for fuel by the poor cottagers living there. The 'Midland Flora' of Purton records *Cyperus nigricans* and *Cladium Mariscus* as denizens here, with other bog plants; but drainage has done its worst in this locality, and not only is the "bare-worn common" denied to the cottager, but the bog is cut off from the Worcestershire botanist. Bromsgrove Lickey, cut up and furrowed by the "greedy plough," has lost almost all its rarer plants; and last year when the Worcestershire Naturalists' Club met there, they were taken to the spot where it was *remembered* only, that *Vaccinium Oxycoccus* once grew. The truly indigenous plants of a district will, however, maintain their ground obstinately, and should not be easily given up as lost by the botanist. *Campanula latifolia*, almost eradicated at Malvern by the recent enormous extension of buildings there, still keeps possession of the bank of a *once* wild pathway; and the elegant and mostly rare *Carex Pseudo-cyperus* is abundant on the side of the road from Malvern to Worcester, about Newland, where little pools and ditches, once open to the great extensive Chace, yet remain under shelter of the hedges. A little—*very little*—bit of heath land at present exists only two miles north-west of Worcester, the relics of a former "Broadheath," where *Erica Tetralix* still nestles; but so rare is it now in the west of Worcestershire, that in the whole district from Worcester to Tewkesbury southwards, and from the former place to Ledbury, Herefordshire, westwards, which I took as the limits for the plants of my Malvern Flora, I could never find a single specimen of any *Erica*.

Certain very rare species may, though truly wild, be limited to such narrow spaces, that without accurate designation of their *precise* position, the explorer may be easily baffled in his efforts to detect their retreats. Thus Braunton Burrows, Devonshire, has been given as the habitat of *Scirpus Holoschoenus*. But when I was at Ilfracombe, on making an excursion to these Burrows, I found an extent of waste sandy and marshy ground, disposed in flats, hummocks, and hollows, to the amount of more than two thousand acres, and bounded on one side by the sea. I made many traverses across it in vain; and some botanists, disappointed like myself, reported it as lost at the station, and I saw it so stated in a botanical publication. A second

visit, though fruitful in some respects, failed to reveal the *Scirpus*; until passing over the Burrows a *third* time, on my passage to the Poppleridge, I quite accidentally encountered the rarity that had so long eluded my search. Any reader of the 'Phytologist,' then, who may wish to visit Branton or Ilfracombe in future, may take the benefit of my experience. Let the explorer keep to the *southern* side of the Burrows, within a quarter of a mile of the twin lighthouses, but farther from the river than they are; here he will come upon a line of little pools and marshy hollows, abounding with *Teucrium Scordium*, *Anagallis tenella*, &c., and two of which were almost filled up with aquatic mosses and a profuse growth of *Epipactis palustris*, finely in flower at the time of my visit. Following the line of these damp hollows *towards the sea*, they terminate in a little marsh impinging upon the sands, and here the *Scirpus Holoschoenus* grows luxuriantly, forming almost a close thicket when I was there, four or five feet high, but entirely confined to a space about twenty yards in length. As the village of Branton is itself three miles off, a field botanist, not guided to the spot, might make many a ramble on the northern side of the Burrows, and about the central sand-hills, without any attendant success.

Mr. Babington, in his 'Manual,' has reported *Astrantia major* as located "between Whitbourne and Malvern." Whoever should take a ramble between Whitbourne and Malvern, would certainly find a very pretty country up hill and down dale for some eight or nine miles; but the chance of coming upon the *Astrantia* from the locality recorded, is so little, that I have in vain urged our local botanists to attempt its capture. Yet no doubt it was seen, and may exist still, though how it got there may be another question.

Some plants will establish themselves plentifully in places where they appear, to an observer, to have been placed by Nature at *the time of observation*, but disappearing afterwards, a question arises as to the deduction from the first recorded fact. About twenty years ago, I landed at Swansea, from Bristol, on a lowering evening, and after a hasty refreshment in the town, ran down to botanize on the sandy beach. Gloom hung upon everything, and a rhimy fog advancing with the sullen sounding billows, threw a murky gloom upon the deepening twilight. I however maintained my ground till it was quite dark, and, among other things unquestionably indigenous to the spot, gathered various specimens of *Delphinium Consolida*, two of which are now in my herbarium. I consequently reported the *Delphinium* as "truly wild on the sandy shore of Swansea Bay," and

I think it is so mentioned in Mr. Watson's 'Botanists' Guide.' But Mr. Flower not observing the plant when he botanized at Swansea, has by implication suggested a doubt as to my observation. Yet the investigating botanist cannot be answerable for the *continuation* of what, nevertheless, has *bona fide* met his view. I left Swansea early the following morning; and when, in 1839, I was at the town again, I found the beach where I had botanized before covered up with ballast, and a painted invitation prominent, inviting "rubbish" to be thrown there. So I fled from the spot in dismay! *Anchusa sempervirens* is another of those fugacious species that often appear in sequestered dingles, seeming as wild as anything else then apparent, and I have gathered it at Lancut, near Chepstow, as well as by the side of the river Mawddach, some distance below Dolgelle, Merionethshire; but I by no means wish to induce any one to search these places, as my experience convinces me the *Anchusa* shifts its quarters year after year. *Onopordum Acanthium* and *Silybum marianum* are known to every botanist as appearing and vanishing with singular uncertainty, ever moving from place to place.

Reseda fruticulosa is another casual wanderer likely to lead a botanist a vain chase, if looked after, yet when presenting itself it must be noted down. I once gathered it in Britannia Square, Worcester, not long after the ground had been partially built upon and made a square, and I have also observed it on the sea-coast at Tenby, South Wales; yet Nature perhaps had as much to do with its position in the first locality as the last. I would not undertake to find it in either of the spots named at the present time. *Centaurea solstitialis* once occurred to me among the sand-hills at Barmouth, North Wales, and I gathered several specimens; yet though placed there by Nature it might have no *permanent* abode on the spot.

Saponaria officinalis is a plant that frequently abounds excessively in some places for a time; and thus I have seen it on the banks of the Usk, at Crickhowel, and on the Severn above Worcester, and in various other spots, even on the rocks at Malvern; but conspicuous as it is, I have often lost it from its wonted haunts.

I could easily name other wandering plants that would be familiar to the knowledge of botanists, and instance notices of their appearance and sudden vanishing. But too much on one subject at a time may be tiresome, and I have penned enough to convince the candid reasoner, that the present defection of any plant from its old habitats does not invalidate *former* record and observation.

Though these remarks have been evoked by the statement of Dr.

Bromfield, in his Catalogue of Hampshire Plants, yet I mean no capricious application to that gentleman in particular, of want of faith in other observers, and I think his labours to elucidate the Vectian Flora highly meritorious; but botanists perhaps too generally indicate scepticism in former observations, when not tallying with their own learning or experience; and thus lookers-out, though not always complaining, have found themselves served with an unexpected writ of error, which, if allowed on every pretence of doubtful authority, would suppress fact and nullify truth. I think, too, before a contemporary botanist is publicly declared to be in error, some communication should be made to him, when possible, on the point in hand. Much advantage would result from this mode of proceeding, and the enquirer would seldom find his trouble thrown away. I have myself often been applied to by personal strangers on facts open to elucidation, and mutual satisfaction has in most cases resulted from the application.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,
April 7, 1849.

Notice of the 'Letters of Rusticus on the Natural History of Godalming.' London: Van Voorst. 1849.

KNAPP'S 'Journal of a Naturalist' and White's 'Natural History of Selborne' are equally original books, although the records preserved by White without doubt led Knapp into a train of similar observing. There is great similarity about these books, the same freshness, the same absence of book-making, the same truthfulness of observations, and, we regret to say it, the same weakness in favour of hypothesis. White discriminating between the willow wrens, or describing the insertion of the peacock's train, is altogether an abler and a more philosophic man than White contending for the hibernation of the swallow, or imagining a hedgehog attacking the tap-root of a plantain, and eating it to the crown as we eat a radish. As far as *observations* go, Rusticus is an author of the same kind, but he has no hypothesis—no speculation: his writings are simple narratives of what he sees; and on this account, and also because such kind of writing is now all but extinct, we think them peculiarly valuable. DeGeer, Reaumur, and others of the good old school are vividly brought to mind while perusing his pages, and we prophecy a rich harvest to compilers from so rich a source.

It was a morbid fancy of Knapp's to remain incognito: we know not whether he subsequently avowed the authorship of the 'Journal.' Our author has a similar fancy. His object in preserving the pseudonym is not very apparent. The veil he wears is so transparent that no one will mistake the man. Every page of the work evinces a thorough knowledge of the locality; such a knowledge as can only be acquired by long residence: an intimate and friendly acquaintance with the inhabitants; a keen relish for and proficiency in field sports; a complete acquaintance with the several branches of Natural History, Zoology, Botany, and Geology; and, finally, the possession of a fluent and highly graphic pen. Godalming must be peculiarly rich in good neighbours, good sportsmen, good naturalists, and good writers, if there is any difficulty in laying a hand on the shoulder of Rusticus and saying "thou art the man."

The volume has found such favour in the eyes of the critics, and the extracts have been so voluminous, that it is difficult to select a page that has not been already reproduced in most of our leading journals: we select the following as not yet hackneyed, we presume because not considered equally striking with the rest; but there is something peculiarly agreeable to us in its truthfulness and unassuming simplicity.

"In many places among our little hills, we have deep hollow sandy lanes, with steep banks, and great thick hedges on each side a-top; hedges run to seed, as it were, and here and there grown into trees—gnarled oak, bushy rough-coated maples, and so forth—trees, in fact, that, stretching their arms from both sides of the way, shake hands over your head, and form a kind of canopy of boughs. In some spots the polypody, twisting and interlacing its creeping scaly stem with the tough half-exposed roots of hazel, maple, oak, and hawthorn, grows in such luxuriance and profusion, that its gold-dotted fronds hang by thousands—aye, hundreds of thousands—over the stumps and roots, forming the most graceful of coverings. Here and there are great tufts of hart's-tongue, with its bright, broad, shining, wavy leaves. Here and there, where water has filtered through chinks in the sand-stone, so as to keep up a streak of moisture down the bank, we have lady-fern and a host of mosses. Here and there, in holes—little cavernous recesses—the face of the damp sand or sand-stone is powdered over with a diversity of lichens. Here and there the lithe snake-like honeysuckle twines round the straight, upright, young stems of the nut-tree, cutting deeply into their substance, and forcing them out of their stiff propriety into strange corkscrew forms:—

up it goes, and getting above the heads of its supporters, spreads its own sweet laughing blossoms to the sun. Here and there is a dense network of the wild clematis, clothed with downy seeds—a plant so loved by Scott, that, with a poet's license, he transplanted it from our warm hedgerows to the cold, rocky scenery of Ketturin and Venue—a botanical blunder which few of his readers will detect, and none criticise severely. I love these lanes, because Nature has so long had her own way in them; and where Nature is left to herself she always acts wisely, beautifully, and well. There is not a foot of surface in these old hollow ways but has its peculiar charms.”—p. 3.

Mr. Salmon has given an admirable summary of the botanical features of Godalming and its vicinity at page 131, interspersing a vast number of localities for the more interesting plants, together with admirable observations on the geological and other natural features of the district where they occur. We rejoice to hear of the success which has attended the publication of this truly pleasant volume.

G.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 504).

Thrinchia hirta. On pastures, heaths, gravelly banks, fallows, &c.; common in the Isle of Wight and doubtless over the county also. A variety, the leaves of which are almost perfectly glabrous, shining, and firmer in texture than usual, is frequent on the short turf of Freshwater Down, above Alum Bay, &c.

Leontodon hispidum (*Apargia hispida*). In dry meadows, pastures, and on gravelly banks, &c., frequent.

Oporinia autumnalis (*Apargia autumnalis*). In meadows, pastures and on dry banks, &c.; frequent over the county and Isle of Wight. Var. Leaves dark green, deeply runcinate pinnatifid, very hispid all over, with rigid, simple hairs; scapes spreading, depressed or ascending. In a very elevated chalky corn-field above Sandown Bay, towards the Culver Cliff, in plenty, August 3rd, 1843. A remarkable form, almost hoary from the copious hairs which clothe both sides of the leaves, but are most abundant along the midribs underneath.

Tragopogon pratensis, var. *minor* (*T. minor*, Fries). In meadows, pastures, by way-sides, borders of fields, woods, and along hedges; not uncommon in the Isle of Wight, though seldom in any quantity together. By the foot-way over the fields from Shanklin to Cook's Castle, and in pastures betwixt Shanklin and Appuldurcombe, not unfrequent. In the Lenten Pit, by Carisbrook, and a troublesome weed on the grass plats at Thorley Vicarage, also here and there in various parts of the island. Boarhunt (pronounced Borrunt) Lane, near Fareham; Mr. W. L. Notcutt (also the var. *minor*). Probably frequent throughout the county. In all the specimens that have yet come under my notice in Hants the involucre has much exceeded the florets in length, which is the only character, so far as I can discover, on which the *T. minor* of Fries is founded, an insufficient one surely taken alone, seeing that in the true *T. pratensis*, *L.*, the involucre is sometimes equal to, sometimes shorter than the florets; why, then, may they not occasionally exceed them, and why should not the variety of *T. pratensis*, with the shorter involucre, be also a species, since their abbreviation is accompanied by a difference in the achenes, which are "quite smooth?"

†? ——— *porrifolius*. In similar places with the last, but rare, and probably not indigenous to this island and county. A solitary specimen picked at Sea View, near Ryde, some years since, by Miss Theodora Price!! Scattered here and there in fields and on hedge-banks about Sandown; Miss S. Lovell, 1846! Amongst grass at Niton; Mr. Curtis, Icon. in Brit. Entom. ix. t. 433 (ad exemplar ex loco delin.). I have never fallen in with the purple goat's-beard in this island myself, but unless one happens to be abroad betimes, the chances of stumbling upon it are not great, as the flower-heads open very early, and close again for the day before noon, after which the plant may pass for the commoner *T. pratensis*, or escape notice altogether, should the larger heads and the greatly more thickened peduncles fail to attract attention. I found it very abundantly ten or twelve years ago at the back of a house at Hythe near Southton, but I should say doubtless escaped from some garden. Meadows near Odiham church, plentifully; Mr. J. Nash, according to Mr. Pamplin, in New Bot. Guide (wild?). Often found growing on waste ground at Anglesey, but only the outcast of gardens; Miss L. Minchin.

Picris hieracioides. On banks, by road-sides, in waste ground, along hedges, the borders of fields and woods; very common in various parts of the Isle of Wight, though not generally diffused over its surface, being mostly confined to the calcareous districts of East

and West Medina. Plentiful along the road from Shanklin to Bonchurch, about its greatest elevation. In Luccombe Chine and East-end, and thence common all along the Undercliff about Ventnor, Steephill, St. Lawrence, &c. Frequent at Arreton, and plentiful at the entrance of Shorwell from Newport. About Brading, Yaverland, Cowes, Freshwater, and many other places. Very rare near Ryde, a few plants observed on the Newport road; almost, if not entirely wanting on the green sand. Apparently not uncommon in mainland Hants. Just out of Fareham on the way to Porchester, and in Maindell chalk-pit; Mr. W. L. Notcutt!!! Abundant a short distance from Bishopstoke on the road to Fair Oak. Selborne.

Helminthia echioides. In woods, thickets, waste places, borders of fields, and by road-sides; a much more social and far more widely distributed plant than the last, occurring abundantly and often in great profusion over most parts of the Isle of Wight, both on the tertiary and cretaceous deposits, but unlike the *Picris*, evincing a preference for stiff clays rather than for the chalk, though accommodating itself with facility to the latter. Our damp clayey and chalky woods and thickets are sometimes quite filled with it, and the great scabrous root-leaves, spreading in flat circular tufts or rosettes, are very conspicuous all the winter long in these, and on hedge-banks and waste ground, fallows, &c. Common, I think, in most parts of the county. Porchester Castle, Newlands, the Salterns; Mr. W. L. Notcutt. Mr. Rawkins, late of Hardingshoot farm, tells me that sheep are partial to the early radical herbage of this very rough plant, which in that neighbourhood at least is known by the incorrect name of borage.

Lactuca virosa. On dry hedge and ditch-banks, chalk cliffs and waste ground; very rare in the Isle of Wight. On a hedge-bank between Wroxall and Newchurch, July, 1844; Miss Hadfield. Through the kindness of Miss H. I possess a part of the only specimen gathered by her, given to me last year, since which I have had no opportunity of visiting the locality. From not being aware of its rarity here, Miss H. is unable to say whether other specimens were growing with that gathered as an example for the herbarium; the plant must be of extremely rare occurrence in this island, since I have myself never fallen in with it; and as regards the mainland I have great reason to fear that my notice of it in the Supplement to the 'New Botanist's Guide,' Vol. ii. p. 568, as growing amongst bushes on the shore between Southampton and Netley, and in other places about Southton, was given on hasty and imperfect observation, and should be expunged till better authenticated. At the same time,

there is every reason to expect this species in the county, as well as *L. Scariola* and *L. saligna*, more particularly the latter, which should be looked for on dry chalky banks, in lanes and salt-marsh ground, it being found on either side of us in the contiguous counties of Sussex and Dorset.

Lactuca muralis (*Prenanthes muralis*). On old walls, rocks, moist, shady, stony banks, in woods and thickets; not very uncommon in the Isle of Wight, usually where the soil is calcareous. On Quarr Abbey walls, sparingly, and under the old garden-wall at Knighton House. Under the rocks in Hatchet Close and Cowpit Cliff woods near Shanklin, frequent. Road-side at Apes Down. In Bloodstone, Slucombe and other copses here and there in considerable plenty. Extremely common in the deep, hollow lanes about Selborne, and no doubt in many parts of the county.

Taraxacum officinale (*Leontodon Taraxacum*). In meadows, pastures, waste and cultivated ground, lawns, &c.; universally abundant. Several varieties of this polymorphous plant, that is found half over the globe, occur with us, which it is unnecessary to specify. The marsh form, with narrower, less runcinate, sinuately-lobed leaves, and the involucreal scales more or less erect or appressed (*Leontodon palustre*, *Sm.*), is frequent in wet places.

†*Crepis setosa*. In cultivated fields amongst clover or lucerne; very rare? and certainly introduced. In a clover-field near Gurnet farm, sparingly, July 29th, 1845, where it was first detected by Dr. Salter, on a botanical excursion I made with him on that day!!! Amongst clover in a field at Wootton, occupying the angle formed by the old Newport road and the new cut to Cowes, in abundance, 1846; *Id.* This is quite a southern plant, scarcely indigenous to any part of Europe north of the Alps, but of late years has obtained a transient footing in several parts of England and Scotland, by importation unquestionably with foreign grass-seed.

—— *virens*. In dry pastures, fields, waste and cultivated ground, on walls, roofs and banks, &c.; everywhere abundantly. A stouter form of this most variable plant, and with larger flowers, grows on the chalk along the road between Carisbrook and Swainston, which might be almost mistaken for *C. biennis*, but wants the essential characters of that species, which, with *C. taraxacifolia* and *C. foetida* (*Barkhausia foetida*, *D. C.*), are likely to prove inhabitants of this county or island. Nor, perhaps, ought the rather northern *C. paludosa* (*Hieracium paludosum*, *L.*) to be deemed a very improbable addition to the Hampshire Flora, since the researches of recent

observers have greatly extended the range of species before thought to be confined within much narrower limits; many northern plants have been detected in the south, and southern ones farther to the northward than they were ever supposed to reach till lately.

About ten or twelve years back I found in this island a remarkable specimen of *C. virens*, in which all the root and inferior stem-leaves were spatulate, very obtuse, and nearly entire, being slightly repand and denticulate only, and on very elongated footstalks, the upper leaves elongate-oblong, slightly denticulate and clasping, with very minute auricles. The late Mr. David Don, and other botanists to whom I showed it, could only refer it to the present species.

Sonchus oleraceus. In waste and cultivated places, garden ground, about hedges and road-sides, in woods, fields, &c.; everywhere.

—— *asper*. In similar situations with the last, and nearly as common. Well distinguished, I think, from the foregoing, by the character of the seed (a part less liable to variation than most others), and by the peculiar curled or rounded auricles of the leaves, like the volutes on the chapters of Corinthian or Ionic columns, so different from the flat, acute and arrow-shaped bases of the leaves in *S. oleraceus*, not to mention that the root-leaves of *S. asper* are winged to their junction with the stem.

—— *arvensis*. In cultivated fields amongst corn, turnips, &c., especially on a dampish soil; frequent: also, but more rarely, on ditch-banks and in moist hedges.

Hieracium Pilosella. On dry short pastures, heaths, banks, walls, rocks, and waste, barren places; very common over the county and Isle of Wight. The var. β . *Peleterianum* will probably be found with us, but I have not yet remarked it in the county.

—— *vulgatum* (*H. sylvaticum*, Sm.). In dry woods and thickets, on walls, banks, and sandy, gravelly, or chalky pastures, but not common, at least in the Isle of Wight. Plentiful in East Standen Copse, near Newport, mostly by the path-side through the wood. Sparingly in a large gravel-pit by the Ryde and Newport road, at the turning off to Fishbourne. In Symington Copse, near Northwood church. In the sandy lane betwixt Morton farm and the Grove, and in several other places in the island. Gathered on the road from Bordean to Froxfield (on Bordean or Stoner Hill), 1848. Wolmer Forest and rocky lanes about Selborne; Dr. T. Bell Salter !!! Fareham Common; Mr. W. L. Notcutt.

—— *boreale*. In woods, thickets and on hedge-banks, but not common in the Isle of Wight. Abundant on a high, sandy bank

in Alverstton Lynch, near Newchurch. By the road-side from Ryde to Newport, a little before coming to Stapler's Heath, but rather sparingly. In Firestone Copse and Guildford Lane. Probably not unfrequent in mainland Hants. Common in woods and hedges between Bishopstoke and Fair Oak. Fareham Common; Mr. W. L. Notcutt (H. Sabaud.).

Hieracium murorum will, there can be little doubt, turn up eventually in this island or on the mainland of Hants.

— *umbellatum*. On sandy or gravelly heaths and commons, hedge-banks, in groves, thickets and bushy places; in many parts of the Isle of Wight abundantly. Plentiful on Lake Common and (before its enclosure) on Royal Heath. On heathy ground about Niton and Whitwell, as on Yarbury Hill, &c. Near Kingston, and in various other places. At Selborne, in the deep, rocky lanes. Fareham Common; Mr. W. L. Notcutt. Var. β . Leaves broader, with large and sharp teeth pointing forward. In the hollow on the road between Blackwater and Rookley. On Apse Heath, frequent. Most likely a frequent species over the county, but the less one has to do with this most troublesome and unsatisfactory genus the better. Happily the botanists of the south are spared the task (pleasant enough, however, to some) of unravelling the web of synonyms only to become worse entangled and perplexed amid the verbosity of ever-shifting and changing nomenclature.

I found, July 13th, 1837, in a wood near Yarmouth, two specimens of a plant which at that time appeared to me to be the *H. molle* of Jacquin and of E. B. tab. 2210, referred in the Manual to the *Crepis succisæfolia* of Tausch,* native to the north of England and south of Scotland in woods. Unfortunately I neglected preserving the specimens for future reference, so cannot with absolute certainty give this northern species a place in the Hampshire flora, though pretty well persuaded of the correctness of the fact of having found it. I hope

* The *C. hieracioides* of Waldstein and Kitaibel. The name given by these authors is preferable to that of Tausch's, as expressing clearly the remarkable hawkweed habit, more manifest than the resemblance of the leaves to those of Devil's-bit (*Scabiosa succisa*), but priority, that grand arbitrator in the wordy disputes of botanists, has doubtless pronounced judgment in favour of Tausch. The English name "suckory-leaved" is one of those odd coincidences in sound which look like mistranslations of blundering ignorance, without being really such, of which we have two notable instances in *Ranunculus sceleratus* and *Euphorbia hiberna*, rendered respectively celery-leaved crowfoot and Irish spurge, for reasons, as is well known, quite unconnected with their Latin specific titles.

such botanists as may visit this island at the proper season will aid me in its rediscovery at Yarmouth.

†*Xanthium strumarium*. In low, rich, waste ground, on ditch-banks and by road-sides. Found by Ray about three miles from Portsmouth on the road to London. (Syn. Stirp. Brit. i. p. 140). I am not aware of this plant having been found in Hants since Ray's time, but as specimens occur now and then about London, in Kent, Surrey, and other counties of England in our own day, there is every chance that it will again turn up in the county if specially sought after. It would seem to have been somewhat less rare in former times than at present, as several stations are given for it by Gerarde and Parkinson; it can hardly, however, be regarded but as an introduced foreigner, imperfectly naturalized and extremely evanescent, though a very cosmopolite by nature, claiming no particular country as its native home, but, Jew-like, settling in preference where the climate is warm and the land rich.

Jasione montana. In sandy or gravelly fields and pastures, on dry banks and heathy, hilly places; not unfrequent in the Isle of Wight and I believe over the entire county. Common in and about Shanklin Chine and on the banks of slipped land below the cliff to the northward of it. Common about Sandown, Blackgang Chine, and on most sandy heaths throughout the island. In the Lith, Selborne, at Wolmer and Shorth Heath; Dr. T. Bell Salter. The plant has a hot, acrid taste and scent, like most of its natural order. Dr. Macreight (Manual of Br. Bot. p. 146) mentions a variety, the *β. maritima*, D. C., as growing on the sea-shore near Portsmouth, having very hairy, prostrate stems, short, canline leaves, hirsute calyx, and outer involucre bracts obtuse.

Phyteuma orbiculare. On dry, hilly, chalky pastures, downs and banks, sometimes in woods; common in various parts of mainland Hants towards the centre and interior of the county, at a distance from the sea; rare near the coast, and not found in the Isle of Wight. On the chalk about Old Alresford; Mr. Wm. Pamplin in New Bot. Guide. In Borden Hanger, thirty-three inches high; Miss E. Sibley. Glebefield, and in a lane at West Meon; *Ead.!!!* Upon tumuli on Old Winchester Hill, a few miles to the S.W. of Petersfield; *Ead.!!* Sutton Scotney, near Andover; Mr. Wm. Whale! Headbourne Worthy, about two miles from Winton; Dr. A. D. White. Down between Chilbolton and Crawley, about seven miles from Winton; *Id.* Warnford; Rev. E. M. Sladen. Catherington; Miss L. Minchin. Meonstoke and (var. with white flowers)

about Buriton; Rev. Messrs. Garnier and Poulter in Hamps. Repos. Chalky hills by Maple Durham; Merrett's Pinax, p. 104. I have no station to record for this plant in Hampshire within many miles of the coast, but I have gathered it within a very short distance of the sea in the Earl of Burlington's park, near Eastbourne, Sussex, and at a very slight elevation, if any, otherwise the species is one of the hill country, preferring the summits and sloping sides of our lofty chalk downs to the woods and banks of the low grounds. The climate of the Isle of Wight is doubtless somewhat too maritime, or, in respect to temperature, though not to longitude, too westerly for a genus so eminently eastern in its distribution as is *Phyteuma* and (with a few exceptions) the order to which it belongs. The range of this species in Britain is indeed singularly circumscribed, and its polar limit remarkably abrupt; for though so frequent and abundant on the chalk ranges of Kent, Sussex, Surrey and Hants north of 51° I am not aware that a single locality is on record for this plant on the continuation of the same cretaceous system beyond $51^{\circ} 30'$, or the latitude of London; some dozen of miles, or perhaps less, totally terminating its progress northward. To the westward it seems almost as rigidly limited. It has, I think, been found of late years in East Wilts (Devizes?), but fails wholly in Dorsetshire, and is apparently wanting throughout the south-western or New Forest district of this county, where the vegetation commences to assume an occidental character, and the soil for the most part ceases to be calcareous. A beautiful plant in its wild state, the globose heads of curiously incurved flowers of the deepest and richest ultramarine are stated in E. B. to be less conspicuous in cultivation, which one would not have suspected, as it varies greatly in size and luxuriance on its native hills, and in the depth of blue in the flowers, which are sometimes white. The (in Britain) still more eastern, though on the continent more northern *P. spicatum*, should be looked for in the woods of East Hants, as there is a possibility its range may ultimately prove co-extensive with that of the present species. In June, 1835, I spent two entire days in seeking for this plant in the woods about Mayfield and Waldron, having none but general indications to the localities, when I at last came upon it in plenty in a copse which had been recently cut on the Hole farm in Waldron, growing with wild columbines (but not with *Actæa*) just as Pollich describes it as commonly doing. The tall stems of the *Aquilegia* caught the eye from afar, and I hailed their appearance as an omen of the good success which a few moments afterwards crowned a search I was on the point of giving up as hope-

less. The plant is unquestionably truly native over a considerable tract of woodland, and is indigenous to most parts of central, southern, and even of northern Europe (Denmark and Livonia). Its discovery in Sussex only within our own remembrance would give a handle to the inference of its having become naturalized merely, but for the fact of hundreds of parallel instances of plants far more conspicuous than this escaping notice in well-explored districts in a way still more difficult to understand and account for, as *Erica ciliaris* on Wareham Heath, *Bunium Bulbocastanum* in Herts and Cambridge-shire, &c., &c.

Campanula glomerata. On dry chalky hills, banks and pastures, sometimes in woods and hedges; more frequent on the mainland of Hants than in the Isle of Wight. On the downs about Freshwater and Alum Bay not unfrequent, as near the Needles Hotel and light-house, but scarcely an inch high, probably from being browsed down by the sheep, and mostly bearing only a single flower. On the field-banks above Alum Bay it grows tolerably luxuriant and tall. Very abundant on the summit and north-eastern slope of Bembridge Down, with flowers considerably aggregated. Most abundantly, but very dwarfish, on the down between Calbourne and Brixton, where I have picked a specimen or two with white, and others with pale blue flowers. Finer and taller in the sheltered valleys of mainland Hants. Bordean Hill, West Meon, &c. At Appleshaw. In Murden Lane, about two miles from Hursley, in great plenty on chalky banks on both sides of the lane; Mr. Wm. Whale. On Primrose Hill, Andover; *Id.* Maindell chalk-pit, Fareham; Mr. W. L. Notcutt !!! A very variable plant, out of which at least a dozen false species of its own genus and one gentian have been manufactured! The latter marvellous transmutation (*G. collina*, *With.*) is neither more nor less than the above-mentioned dwarf, single-flowered state of *Campanula glomerata*, facsimiles of which, as represented in Pl. xi. fig. 8, of the 'Arrangement of British Plants,' 3rd edit., I have often gathered on our high downs, at the very zero of degeneracy from the ample development which through cultivation enables it to rival the most admired of our border perennials.

———— *Trachelium*. In dry, chalky and hilly woods, thickets, hedges, and on bushy declivities; very common in mainland Hants; on the Isle of Wight confined principally to the interior central parts of West Medina, scarcely found in the eastern hundred. Abundant in woods at Swainston and Rowledge. Abundant in the Tolt Wood, and common elsewhere about Gatcombe in fields and hedges. About

Shorwell, sparingly. In Lorden, Slucombe, Westridge, and other hill-side copses on the chalk, in plenty, and in the first of these I have gathered it with flowers of a pure white, August 23rd, 1839. Extremely common around Petersfield, in woods at Bordon, about East and West Meon, &c. Most abundant and luxuriant in woods, hedges and close lanes about Clanfield, the flowers often as large, or nearly so, as in *C. latifolia*, and of as deep a blue. Frequent about Selborne and at Appleshaw. Andover; Mr. Wm. Whale. Maindell and Whitedell, near Fareham; Mr. W. L. Notcutt!!! and generally distributed over the county, but in this island everywhere avoiding the coast and flat country, even when the chalk extends to them. Its distribution in the island exactly accords with that of the bryony and buckthorn, as remarked under those plants. A stately ornament along our thick hedge-rows and retired green lanes in the latter half of summer. The true Canterbury bells of our gardens (*C. Medium*, L.) I have twice found growing spontaneously on bushy banks at Brading and Bonchurch, but in small quantity, and without doubt as strays from cultivation.

Campanula rotundifolia. In dry sandy fields and pastures, on heaths, walls, banks and chalky downs; abundantly over the county and island, particularly in elevated situations. This common but graceful and delicate species is of unusual luxuriance on sandy fences near the foot of Bleak Down, where I have picked a few specimens with white flowers. On our British heaths and hills the harebell varies but little from the normal type, but on the Italian Alps, as Bertoloni observes, it sports in endless and intricate varieties, giving rise to many false species. I have gathered this plant, so familiar to us all from childhood, on the shores of Lake Champlain, at Burlington, in Vermont.

——— *Rapunculus*. On gravelly or sandy banks, hedges and borders of fields; very rare. "In the pastures and hedge-sides on the north-west of the Moor, not far from the great bog (Petersfield Heath?) near Petersfield;" Mr. Goodyer in Merrett's *Pinax*, p. 103. I have never seen Hampshire specimens of this plant, and do not know if it be still found in Goodyer's localities. Miss E. Sibley informs me that she once saw or received a specimen from the same part of the county, and as the species occurs rather commonly in certain parts of Surrey, it may well be a native with us also.

——— *patula*. In damp, gravelly pastures, hedges, borders of fields and thickets; rare in Hants, and not found in the Isle of Wight. On the right-hand side going from Bishopstoke Schools to

Fair Oak ; Dr. A. D. White !!! first noticed by the present Dean of Winchester. I find it, though sparingly, in moist field-hedges elsewhere near Fair Oak. About Hurne, near Christchurch ; Mr. J. Curtis in litt. (Icon Brit. Entom. viii. t. 351, from Hants specimens). On a gravelly bank near Bramshot, and in a lane leading thence to Hind Head Heath, 1829 and 1835 ; Mr. Wm. Pamplin in litt. Portsdown Hill (Mr. Robinson) ; Mr. W. L. Notcutt. I hear it is not uncommon in Wolmer Forest, and probably on those of Bere, Alderholt and in the New Forest district.

Obs.—*C. latifolia* has been reported to me as having been found by a lady at Liphook ; but subsequent inquiry by my obliging and zealous informant makes it more than doubtful whether an error arising from an accidental transposition of labels has not been committed in this instance. For the present, therefore, we must not venture to enrol this splendid species amongst the floral beauties of Hampshire, but since it has been found of late years in Surrey, and is sparingly distributed in several of the midland counties, there seems no reason for not indulging a hope that it may yet be discovered within the limits to which these Notes and Observations are confined. This is the most western of all the broad-leaved species of *Campanula* (a genus pre-eminently eastern and continental in its distribution), extending into Ireland and the west of Scotland, both which countries are still poorer than England in the plants of the order it gives name to. In the Channel Islands even *C. rotundifolia* fails, and *Jasione montana* becomes local in Scotland. In Sweden, about Stockholm and Upsala, nearly in the latitude of 60°, eight species of *Campanula* are indigenous to the floras of those cities, which in Hampshire, nine degrees farther south, are reduced to five, and for the whole of Ireland to three. In Siberia, the Italian and Austrian Alps, Russia, and other eastern parts of Europe and Asia, the species of *Campanula* are almost innumerable.

Specularia hybrida (*Prismatocarpus hybridus*). In sandy or chalky corn-fields and other tillage land ; pretty general, and often very abundant in the Isle of Wight, so as sometimes to prove an injurious weed to the wheat crops from its quantity alone. Fields above Sandown Bay, about Shanklin, and in various parts of Undercliff, extremely frequent. Sandy fields about Newchurch. Extremely common on the chalk and sand in West Medina, about Cowes, Yarmouth, Thorley, Wellow, Westover, Rowledge, Brixton, Shorwell, and on the sand of the south-west of the island generally, even in very upland situations. Corn-fields about Alresford, &c. ; Mr. Wm.

Pamplin in New Bot. Guide Suppl., the only mainland station I find recorded by others, nor have I noticed it myself, being so common on this side of the Solent, as scarcely likely to draw my attention when seen, being, moreover, a rather inconspicuous plant when not in flower. The deep violet blossoms, which are produced here from the early part of May till August, open only in clear weather, and in many instances, perhaps in most of the earlier flowers, the corolla is either wanting or does not open at all, the seed being, notwithstanding, perfected as usual. I had long since suspected this was the case, from constantly finding fully formed capsules on very young plants at the very commencement of the flowering-season, and from repeated disappointment in obtaining specimens on which the corollas were present and expanded, even during favourable weather. My idea received ample confirmation from observing the same want of a corolla in all the the earlier flowers of *S. perfoliata* of North America, where, from the much greater size of the plant and its flowers, the phenomenon could not fail to attract attention. This species is frequent in most parts of that continent, and abounds in old pastures and cotton-fields in the south and west. In April I could scarcely find a blossom on the many hundreds of specimens I examined, though capsules were produced and ripening in plenty, but in May and June the stems were copiously adorned towards their summits with the large, pale purple, striated flowers; the calyx of the earlier incomplete ones was usually 3-cleft, of the perfect mostly 5-cleft. *S. Speculum*, D. C. (*Campanula Speculum*, L.), the Venus' looking-glass of the gardens, will probably turn up some day in the chalky corn-fields of the south-east of England, since Parkinson mentions it as found in Hertfordshire and Kent in his time, although Gerarde tells us he only observed our commoner species where Parkinson alleges the other to grow, namely, about Dartford and Greenhithe. It seems indeed surprising, since we have the rarer and more local, that we should want the commoner and more diffused of the two European *Speculariæ*; and when we consider how plentiful *S. Speculum* is in all the adjoining parts of the continent, even along the coasts, in Normandy, Belgium, Holland and Germany, we must regard it as another instance of the marked tendency in the species of *Campanulacæ* to become rare or extinct in a westerly direction and in insular localities. The exactly oval shape, exquisite polish and brilliancy of the seeds, recalling to mind an ancient mirror or speculum, originated the name of one species, to which that of the Paphian goddess was most appropriately joined.

Wahlenbergia hederacea. In damp turfy or heathy pastures, on spongy bogs, moist banks, and bare, humid spots on commons, &c.; apparently very rare in the Isle of Wight. First found by Miss Eveleigh, on damp pasture ground at Rookley Wilderness! By the margin of Lashmere Pond at the foot of Bleak Down, but sparingly; Dr. G. A. Martin, 1841 !!! Boggy tract on the southern face of Bleak Down. On moory ground not above 400 yards (about west) from Rookley farm, in great plenty, as also in other parts of the same pasture field, abundantly, July 28th, 1844. Near Ashurst Lodge, New Forest; Mr. G. S. Mill in 'Phytologist,' i. p. 92. This beautiful little plant will probably be found not uncommonly in our Hampshire forests, which, from the general nature of the soil in these woodland tracts, are just the places in which it delights. When growing on bare, exposed spots on banks, its minuteness is often its protection from the clutches of the prying botanist, and doubly secure is it in its concealment when trailing its thread-like stems through a bed of moss or verdant turf on the margin of some clear and shallow streamlet. I have not yet succeeded in getting the capsules of this species, which, with the exception of one or two others, are all extra European, and mostly restricted to the southern hemisphere, more particularly abounding at the Cape, and in the African islands of Madagascar, St. Helena, &c.

N. B. — *Lobelia urens* may possibly be found hereafter on heaths along the western borders of the county, seeing that two plants highly characteristic of the occidental flora inhabit the contiguous county of Dorset within a very few miles of the Hants boundary. I allude to *Erica ciliaris* and *Simethis bicolor*. I am not, indeed, certain that the former has not already been gathered within our limits, having heard a rumour to that effect, but which needs to be confirmed by competent authority.

Calluna vulgaris. On barren moors, heaths, in dry, sterile, sandy woods, thickets and pastures; abundantly. Var. β . Hoary tomentose. On Bleak Down and in Youngwood's Copse, near Newchurch, Isle of Wight, in plenty. The prevailing form, and in its most hairy state, at Wolmer; Dr. T. Bell Salter.

Erica Tetralix. On damp heaths, wet, moory ground and spongy bogs; frequent in the Isle of Wight, and doubtless over the entire county. Var. Flowers pure white. Near Newport and at Blackgang; Mr. G. Kirkpatrick. Forest of Bere, New Forest and Isle of Wight; Rev. Messrs. Garnier and Poulter. I found this pretty variety in the island to be not uncommon on Briddlesford Heath, 1841

and 1843, and occasionally on the wettest bogs of the moors around Rookley Wilderness.

Erica cinerea. On heaths, commons and moors, also in dry barren woods, and sterile, gravelly or sandy pastures; most abundantly. The white-flowered variety I found on Ningwood Common, near Yarmouth, in 1841, and it is noticed in the 'Hampshire Repository,' as growing in the same places with a similar variety of the last species across the water.

N. B. — The beautiful southern and western *E. ciliaris* should be carefully searched for on the forest land along the border of Dorsetshire, since it occurs abundantly on the heaths around Corfe Castle, in Purbeck, where I gathered it in 1841, on a botanical excursion to Poole and its neighbourhood with my esteemed friend Dr. Salter, who, though a native of that town, well acquainted with the botanical localities in its vicinity, and gifted with eyes inferior to few in acuteness at detecting new plants on a ramble, was fated to have this fine heath elude his penetrating glance. It was first added to the Dorsetshire flora by W. C. Trevelyn, Esq., a few years previous to our visit, and had been detected some time before in Cornwall, in various parts of which county it is quite plentiful, though it had escaped all the earlier botanists, and most of those of our own time in a way that is perfectly unaccountable; especially when we reflect that Cornwall, from the peculiarity of its vegetable productions, has always been attractive ground to botanical investigators from the days of Ray to the present moment. The history of this heath, and the additions that are being made to the British flora, which seem to increase in number every year, simply because that of observers increases yearly, should teach us never to think any field, however small, has yielded up the last ear into the hand of the diligent gleaner, and that even in our thickly-peopled land, where field is joined to field and house to house till there is no room left, full many a flower will yet be found to have been born and to have blushed unseen hard by, if not amidst, the busiest haunts of men.*

Vaccinium Myrtillus. In dry or stony woods, thickets, and elevated heathy places, also on the highest chalk downs occasionally; not very general in the Isle of Wight, but I believe frequent over most parts of the county. On Shanklin Down. Head Down, near

* The detection of *Cucubalus baccifer* by Mr. Luxford in what may fairly be called the heart of London, namely, the Isle of Dogs, is the extremest case in point that can be cited.

Niton, and on Yarbury Hill. Abundant on the dry, heathy parts of Apse Castle, at America, &c., and on Blackpan Common. The black and rather agreeably flavoured fruit are called here hurtle or hurdle-berries.

Vaccinium Oxyccocos. In spongy, turfy bogs, creeping amongst Sphagnum and other mosses; extremely rare in the Isle of Wight, and apparently nearly as much so in the county generally. In a sphagnous, boggy meadow by the Medina, betwixt Cridmore and Appleford farms, forming part of a tract of peaty bog, known as the Wilderness,* in considerable abundance; August 22nd, 1841. I had not succeeded in finding the cranberry here in fruit, and scarcely even in flower, but on the 27th of September last, Dr. Salter gathered a handful of the ripe berries, which he observed to be in a great measure concealed amongst the Sphagnum, through which, like crimson threads, the stems of this plant delight to trail. In the bogs of Bin's Pond; Rev. G. White. Dr. Salter met a poor woman with a handkerchief full of cranberries for tarts, on Wolmer Forest, from whence he infers that they must be tolerably abundant in some parts of that district. Droxford Forest; Rev. E. M. Sladen.

N. B.—*Vitis Idæa* has been mentioned to me in a list of plants as found in this county, I have little doubt through error or inadvertence, being an unlikely species to grow wild in this part of England even on our loftiest hills. *Andromeda polifolia* may possibly occur on peaty moors and bogs of the forest districts, as it is known to inhabit Somersetshire, near Bridgewater and Glastonbury. It has even been mentioned to me as growing in this island, which must certainly, I think, be a mistake, as I could hardly have overlooked so conspicuous a plant in the very few and limited localities fitted for its production.

Pyrola minor. In mossy (and dry heathy?) woods and thickets; very rare? Found in June, last year, by J. Woods, Esq., on what was once a corner of Romsey Common, but now a fir plantation, in tolerable abundance. Mr. Woods, in a late communication, has kindly indicated to me the exact locality for this species, which may possibly not be very uncommon in the New Forest district. *P. rotundifolia* may be reasonably hoped for in this county, but no species of the genus has yet been discovered in the Isle of Wight.

Monotropa Hypopitys. In woods, groves and plantations, principally in those of beech or fir. Very rare in the Isle of Wight. By

* Called also Rookley or Appleford Wilderness.

the foot-way through the Undercliff (Luccombe Landslip or Eastend) from Luccombe to Bonchurch; Mr. J. Woods, jun. in Bot Guide. I have repeatedly searched the place in vain. In a large plantation of fir and beech (New Barn Hummet) by Calbourne New Barn, but sparingly, July, 1842-43. In the great plantation along the slope of the Down above Westover, in small quantity, July, 1843. In both stations periodical in its appearance. More frequent in natural beech woods on the mainland. A single specimen in a wood at Clanfield, July, 1848. In Bordean Hanger; Miss G. E. Kilderbee! In the beech woods abundantly, as at Avington, between Winchester and Alresford; Mr. Wm. Pamplin in litt. Avington Wood; Dr. A. D. White. Holt Wood (Alder Holt Forest?); Rev. Messrs. Garnier and Poulter in Hamps. Repos. Brookwood Coppice, near Warnford; Rev. E. M. Sladen. Westbury Park, West Meon; Miss E. Sibley. In Selborne Hanger, under the shady beeches at the north-west end; Rev. G. White. In the woods at West Dean, Sussex, the residence of my friend the Rev. L. Vernon Harcourt, where the *Monotropa* abounds, I have gathered specimens fifteen inches high. The entire plant has a strong earthy smell, which has been compared to various and very dissimilar substances, as primroses, bees' wax and vanilla! To myself the odour is most repulsive, and forcibly recalls that given out by moistened rhubarb.

Ilex Aquifolium. In woods, thickets, hedges, on dry bushy or heathy banks and hill-sides, extremely common, and in many places most abundantly, throughout the county and Isle of Wight. More usually seen on this island as a bushy shrub or low tree, the soil apparently not suiting its development; in some parts, however, hollies of considerable bulk are not unfrequent, as on Hillside, by Newchurch, and in the romantic oak and beech glades of the New Forest they may be constantly met with of timber-like size and height.* Amongst the greatest ornaments of the beautiful and picturesque spot called Apse Castle,† are its hollies; many of the trees here bear all

* All around Lymington, Boldre, Brockenhurst, and other parts of the ancient forest precincts, this tree so abounds as to be a distinguishing feature of its beautiful sylvan scenery.

† Apse Castle (so denominated perhaps antithetically as being a place in which a castle never existed, where one *ought* to have stood) is among the many secluded nooks with which the interior of the island abounds, but are nevertheless unknown to the herd of summer tourists who deviate about as much from the prescribed line of coast route, and get over it with nearly the same celerity, as though they were travelling by railroad on urgent business. This is simply a thickly-wooded eminence, about

their leaves flat and quite entire, and when loaded with their berries of vivid scarlet, have a superb effect from the greater breadth of dark green polished surface (reflecting back the sun's rays) they present

one mile N.W. by W. of Shanklin, commanding a fine view, and flanked on one side by a deep ravine or *den*, as our northern neighbours, the Scotch, would call it (we have the same word in many Hampshire names of places, as Bordean, Bramdean, &c.), along whose bottom winds a clear, but shallow brook, overhung by precipitous banks covered with trees and shrubs, the natural growth of the place. Under the eastern side of the hill is the little rude hamlet of America, and at its western base the picturesque homestead of Apse farm, where grows the finest specimen of the Wych elm to be seen in the island.

In medio ramos annosaque brachia pandit
Ulmus opaca, ingens.

The late Lord Yarborough planted the top of the hill with pines (*P. Pinaster*), and caused broad grass walks to be cut through the wood by a winding ascent to the summit, for the convenience of the few that resort to and joy in its cool and green retreats, judiciously leaving all beside for Nature to embellish in her own wild way.

A more delightful scene can hardly be imagined than is offered by this fresh and verdant spot, when on some glorious morning in April or May, the atmosphere radiant with an intensity of sun-light such as no season but spring and early summer exhibits, we tread the solitary mazes of Apse Castle, a blooming wilderness of primroses, wood anemonies, hyacinths, sweet violets, and a hundred other lowly and fragrant things, overtopped by the taller and crimson-stained wood spurge, early purple orchis, and the pointed hoods of the spotted-leaved wake robin, the daisy-besprinkled track leading us upward, skirted by mossy, fern-clad banks on one hand, and by shelving thicket on the other, profusely overshadowed by ivy-circled oak and ash, the graceful birch and varnished holly, beneath which spring the berry-bearing alder, hazel, spindle-tree, the dogwood and guelder rose, with here and there the "bonnie broom," and a mountain ash, slight and airy as a sapling, over all which the woodbine creeps profuse, and the black bryony (*Tamus communis*) loves to twine, displaying its hand-broad, overlapping leaves of translucent green, that, bright and polished as a mirror, dance and glisten to the sun like a descending stream of foliage. Arrived at the summit, what a luxury to recline on the couch of silvered green which the rabbit-grass (*Agrostis setacea*) spreads thickly over the wide pathway, the softest, driest, and most elastic of turf, or stretched beneath the old hollies or birches to listen to the nightingale, that even at noontide is pouring forth from twilight covert incomparable harmony, till returning darkness calls her, unwearied, to take part in the nocturnal concert with her then numerous rivals,

"And all night long her amorous descant sing."

Such botanists as have no objection to prick their fingers in the attempt to loosen, without cutting it, the Gordian knot that binds the brambles together with a tie of sadly disheartening complexity, will find as much of the pleasure and pain attendant on the business as they can desire in the many interesting species or varieties of Rubus that flourish in the dell (*vulgo* Tinker's Hole) at Apse Castle.

over the ordinary spiny-leaved variety. The finest hollies I ever saw were at the Lakes of Killarney, I think on Innisfallen Island; as we advance westward this tree acquires greater magnitude and elevation, the cold of a deeply continental climate stunts its growth remarkably; for though found wild in the forests of Prussia when it is sheltered by adjacent trees, it resists with difficulty the winter in the Botanic Garden at Berlin, and even at Vienna I have seen it treated as a greenhouse shrub. The common holly of North America, *T. opaca*, is so much like the European, as to have been thought a variety merely of the latter. The leaves are precisely similar, but of a yellowish green, and opaque, without that polish and lucidity which renders ours so much the handsomer tree. The berries are of a duller scarlet, and the growth of the branches less compact and bushy, whilst the terminal shoots are much shorter, more slender, perfectly ligneous, and covered with a brownish bark like the older wood; whereas in our holly the extreme shoots are much longer, thicker, and succulent, with a soft green or purplish epidermis. This last character, which I do not find noticed by any author, I have verified by constantly repeated examinations of the wild plant over a great range of soil and climate, and found it to hold good without an exception: our present diagnostic formulas are inadequate to the perfect discrimination of these two species. The berries of the holly failed notably in quantity last year, both here and in other parts of England.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
April, 1849.

(To be continued).

BOTANICAL SOCIETY OF LONDON.

Friday, April 13, 1849.—John Edward Gray, Esq., F.R.S., President, in the chair.

Dr. Mitchell, of Nottingham, and F. Dickinson, Esq., of London, were elected members.

Mr. H. Taylor exhibited specimens of *Anemone ranunculoides*, which he found still growing at Abbots Langley, Herts.

Mr. G. Maw presented a specimen of *Linaria supina*, Desf., discovered by him at St. Blazey's Bay, Cornwall, in March last.

The continuation of Mr. Woodward's paper 'On the Flora of Gloucestershire' was read.—*G. E. D.*

On the Flowering of British Plants.

By ISAIAH W. N. KEYS, Esq.

January, 1849. Season very mild. Early in the month, saw primroses which had been gathered by some pedestrians who had availed themselves of the fine weather for a country walk. Noticed several young dandies who are fond of carrying "flowers in their waist-coats" pranked with snowdrops. In the latter part of the month, an old water-cress woman called at my door, having her basket of salad fringed with white scented violets. She had brought them into the town for sale. I did not inquire of the old woman where she procured her violets; but doubtless they were pulled from some hedge. The white variety of *Viola odorata* is, however, very common here in the little garden plots of peasants. Query, were not many of the plants now considered questionably indigenous, on account of their being found in gardens and near dwellings, once truly wild; having been (for some property of use or ornament which they possess) removed, by the invading hand of man, from their native haunts to the spots which they now inhabit? It may be remarked that most of the plants against which the mark of dubiety is fixed, are either of lovely form or agreeable odour, or are invested with poetical interest.

February 11. Weather very fine. *Ranunculus Ficaria* in bloom sparingly. *Salix* unfolding its catkins. In the garden, white violets perfuming the air.

February 13. Fine day; mild. Found, during my walk, an outer coat an incumbrance. Noticed the following plants in bloom:—*Draba verna*: minute specimens, on an old wall near the town. *Thlaspi Bursa-pastoris*, *Senecio vulgaris*, *Bellis perennis*, and *Taraxacum officinale*, by the road-side and in waste places. *Ranunculus Ficaria* was plentiful on the road-side of Chelson Meadow and elsewhere. In the usual habitats in Saltram Woods, *Galanthus nivalis*. *Lychnis dioica*, in the wood; only one plant: this must have been a veteran of the past summer. *Vinca major* sparingly in flower, and *V. minor* abundantly so, all along the banks and pathways through Saltram. *Mercurialis perennis*. *Narcissus Pseudo-narcissus* was in full bud—in some cases on the point of bursting into flower. Gathered two or three small specimens of *Viola canina*. Met with only one primrose. In the hedge on the Plympton road saw four plants of *Potentilla fragariastrum* in flower. *Cardamine hirsuta* was whitening the hedges with its tiny petals; and in many in-

stances stalks not half an inch long were supporting pods of nearly an inch in length. Was surprised to see, in Plympton St. Mary Churchyard, *Angelica sylvestris* in flower. The plants were very stunted—not more than from 12 to 18 inches high. Their precocity was attributable, I presume, to the moist, low, warm, and sheltered *locale* in which they grew. The willows on the borders of the various streamlets I passed were unsheathing their blossoms. Wherever I cast my eyes, *Arum maculatum* was parading its elegant glossy foliage. *Lamium purpureum* in flower. Also, on the old walls of the village, *Cochlearia danica*, *Veronica hederifolia*, and *Linaria Cymbalaria*.

March 4. Fine warm day. Primroses freely in flower in sheltered woodland nooks adjoining Mount Edgumbe. Also in flower, daisies, *Ranunculus Ficaria* (still sparingly), *Veronica Buxbaumii*, and *Fragaria vesca*.

March 6. *Crepis virens* in flower. Also, on the banks of an osier-bed, *Petasites vulgaris*, accompanied by splendid examples of *Ranunculus Ficaria* and *Caltha palustris*. *Geranium robertianum*. *Tussilago Farfara* (solitary specimen). *Glechoma hederacea* rather copiously scattered on the hedge of a footpath near Plympton. *Chrysosplenium oppositifolium* in flower, in a shady, damp spot.

March 19. Dark and rather cold. Found the following in flower:—*Stellaria holostea*, *S. media*, *Viola odorata*, *Adoxa moschatellina*, *Oxalis acetosella*, *Lamium album*, *Anchusa sempervirens*, *Veronica Chamædrys* (one plant), and *Luzula Forsteri*.

March 25. Took a walk this morning through a luxuriant unfrequented lane, in the parish of Plymstock, about three miles from Plymouth, in which *Viola canina* was abundant and very large. Primroses rather scanty. Saw leaves of *Aquilegia vulgaris*, which I should consider undoubtedly wild in this locality, as it is at considerable distance from both houses and gardens. *Fragaria vesca* frequent.

April 5. Took a botanical stroll in the afternoon. Fine mild weather. Went first to Weston Mills, by way of Milehouse, passing Swilley. Gathered nothing particular on my way. Hedges in low ground thick with *Stellaria holostea*, *Viola canina*, and primroses. *Vinca minor* still in flower. Met with occasional plants of *Veronica Chamædrys* in flower. On the old bridge near the mill, *Draba verna* in flower and fruit; *Saxifraga tridactylites* in flower. On the top of a high wall enclosing a farm-house, *Viola odorata* (white variety), flowers fading. Strange habitat this! On the sides of the wall, miniature plants of *Cochlearia danica*, about an inch in height; leaves

nearly all radical, on long petioles; flowering stem leafless. The flowers were as large as those borne by plants of the ordinary stature. In this neighbourhood grows *Helleborus viridis*; but I was too late for it: it had passed flowering. Primroses abundant in an orchard, and excessively large; in which place I found, *in a hedge*, *Cardamine pratensis* in flower. Saw more of this plant afterwards on the border of a rivulet in Ham Wood. Returned through the wood; at the end of which, on an old wall, found *Sisymbrium Thalianum*,—some in flower, others with nearly ripe fruit. Passed Burleigh, where I saw plenty of *Anchusa sempervirens*, some plants in flower. Gathered, in the course of my ramble, besides those already mentioned:—*Mœhringia trinervis* (saw only a little of this in flower), *Geranium lucidum* (saw only two or three in flower), *Heracleum Sphondylium* (partially blown), splendid specimens of *Asplenium Trichomanes* in fruit, *Cardamine hirsuta* and *C. sylvatica* (query, are these plants really two species? I commonly find the former on the upper and dry parts of hedges; while the latter occupies the damp, lower parts, and the runlets or water-courses), *Veronica serpyllifolia*, *Ranunculus bulbosus* (two or three only), *R. repens* (only one), and *Arum maculatum*.

April 6. *Agraphis nutans* in flower.

April 8. Found the following in flower:—*Geranium molle*, *Sonchus oleraceus*, *Cratægus oxyacanthus*, *Ranunculus parviflorus* (sparingly), *Viola tricolor* (only one or two), *Myosotis collina*, and two or three of the yellow-flowered Cruciferae—*Brassica* or *Sinapis*, did not notice which.

April 11. Sauntered through fields leading out of Plymouth to Stoke. Found, in flower, *Fedia olitoria* (small), *Alchemilla arvensis*, *Veronica arvensis*, *Barbarea præcox*, and *Sherardia arvensis* (small and in limited quantity).

April 17. Extraordinary change in the weather: very cold; sleet and hail. On the rocks under the Hoe found in flower (but stunted plants), *Erodium moschatum*. Also, *Smyrniolum olusatrum* (partially open).

In my former communications I quoted the flowering-seasons as given by Sir W. Hooker and Mr. Babington. I have refrained from so doing on the present occasion, lest I should trespass upon your space, as well as to avoid the appearance of pitting my humble observations against their high authority. All interested will “compare notes.”

I have been reminded that in my former articles on the present

subject. I should have stated (in order to avoid undue expectations in less genial localities) that this district is, from its warm and sheltered and undulatory character, favourable to the early appearance of flowers. In the list now exhibited, there are several remarkable instances of early flowering; *e. g.*, *Anchusa sempervirens*, *Angelica sylvestris*, *Veronica Chamædrys*, &c., &c.

ISAIAH W. N. KEYS.

Plymouth, April 20, 1849.

Mr. Newbould the discoverer of Melilotus arvensis.

By G. S. GIBSON, Esq.

FEARING lest there may be some misapprehension respecting the discovery of *Melilotus arvensis*, from the recent mention of it in the 'Phytologist,' I beg to state, that it was first found at Thetford by W. W. Newbould, this summer; and it was not till I afterwards found both species abundantly in this neighbourhood, that I was satisfied of its being a distinct species. The credit of the discovery, therefore, entirely belongs to him, and not to me. It may be a point of little importance, but I shall feel best satisfied in having the real facts thus stated, as it is due to one of our most accurate yet diffident botanists.

G. S. GIBSON.

Saffron Walden, April 13, 1849.

On the Discovery of Udora or Anacharis in Berwickshire, in 1842, and again in 1849. By Dr. GEORGE JOHNSTON. Extracted from the 'Proceedings of the Berwickshire Naturalists' Club.'

ON the 3d of August, 1842, I found, in the lake at Dunse Castle, a plant, which interested me from its neat and peculiar habit. It grew, entirely submerged, amongst the ordinary pond Potamogetons, and a plant in flower could nowhere be seen. A specimen was sent to Mr. Babington, and afterwards, at his request, two or three other specimens were forwarded to him; and I learned, from Mr. Babington, that he had submitted them to the inspection of Mr. Borrer. It is unnecessary to say more than that my quest after the name and character of the plant was very unsatisfactory; and the interest in it

decayed and died away under the persuasion that the plant might have been introduced into the lake with some other aliens from the south. This persuasion was confirmed by Dr. Philip W. MacLagan, at a subsequent period, who, on seeing a specimen in my possession, at once told me it was an *Udora*, and, he believed, the same as the Canadian species. I presumed, therefore, the more that it was foreign to our district; and my interest lay dormant, until revived by the perusal of Mr. Babington's description of the *Anacharis alsinastrum*, in the 'Annals of Natural History' for February, 1848, for in this *Anacharis* I immediately recognised my Dunse Castle herbelet.

On writing to Mr. Babington, he replied, that he "had totally forgotten the plant" I had sent him, and the specimens were lost. I could not comply with his demand for other specimens, seeing that the habitat is sixteen miles distant from my residence; and to few provincial practitioners is given the leisure to ride thirty-two miles in order to cull a simple for the gratification of his own or of another's curiosity. My good fortune, however, was on the ascendant. A few weeks only had passed over, when I again found the *Anacharis* in a habitat in which it was, beyond all doubt and suspicion, most truly indigenous. On the 9th of August, whilst angling in the Whitadder, at Newmills, in the Liberties of Berwick, I was most agreeably surprised to find the plant growing with *Potamogeton crispus*, *pusillus*, and *perfoliatus*, in the bed of the river, at a depth of about fifteen inches. In the lake at Dunse Castle, the *Anacharis* had a long slender stem, but here, influenced by the stream, it grew in a roundish tuft or bunch, with stems not exceeding three or four inches in height. None of them rose to the surface, and on none of them were there any flowers.

On September 4, I again discovered the *Anacharis* in great abundance, in a small creek at a still and deep reach of the Whitadder, between Whitehall and Edington Mill. Here it had the habit of the plant in Dunse Castle Loch, with stems from two to three feet in length. None of them were in flower.

It would be presumptuous for me to say, whether the *Anacharis alsinastrum* is identical with the *Udora canadensis* or not. I have specimens of the latter from Dr. P. W. MacLagan, gathered in Detroit River, July, 1848, and they resemble exactly our Whitadder plant, as found at the Newmills station; but, like this, the Canadian specimens have also no flowers. I can see no difference of any moment in the shape of the leaves, for this differs in the British as in the American plant; and the structure and marginal serratures are exactly alike.

The spinulose serratures begin in both about the middle of the leaf, and are of a brown colour, and firm texture. The apex of the leaf in the Canadian *Udora* is usually more pointed or lanceolate than of the Whitadder *Alsinastrum*, but, in an aquatic plant, such a slight character is of no consequence. Pursh, in fact, of the American plant, says:—“Michaux describes the leaves to be oblong and obtuse, which is only the case in the early part of the season; at flowering time they constantly are long linear and acute.”—*Flor. Amer. Sept.* p. 33.

The American plant is “frequent from Canada to Virginia.” Dr. P. W. MacLagan writes me, that it is extremely common in Upper Canada, “but I never could make more than one species, although I looked at them well after I got Mr. Babington’s paper. Dr. Gray makes but one species in the Northern States.” Dr. Gray’s description of *Udora canadensis* is as follows:—“A perennial? herb, growing under water with elongated branching stems, thickly beset with pelucid and veinless, 1-nerved, sessile, whorled or opposite leaves,” which, in the specific character, he says are “oblong, ovate or lanceolate, finely serrulate ($\frac{1}{2}$ long).” All this agrees with our Berwickshire plant. Dr. Gray continues:—“The staminate flowers break off as in *Valisneria*, and float on the surface, where they expand and shed their pollen to fertilize the stigmas, which are raised to the surface by the excessively prolonged calyx tube which varies in length according to the depth of the water.”—*Bot. North. Un. States*, p. 462.

Remarks upon Mr. Watson’s Case between Mr. Andrews and Mr. Babington. By C. C. BABINGTON, Esq., M.A., F.L.S., &c.

As the discussion between “C.”, who has now transferred the matter to Mr. Watson, and myself, is probably of interest to a very small number of the readers of the ‘Phytologist,’ it is only from necessity that I again intrude upon its columns; but after the remarks of Mr. Watson, in the number for May, I can take no other course.

In the first place, I have to call attention to the following extract from a letter addressed to Mr. H. C. Watson, on April 8 last, as it totally contradicts the remark in his communication, that “a copy of Mr. Andrews’ paper was given by Professor Allman to Mr. Taylor, for publication in the *Annals*.” The extract is as follows: “Perhaps you will also tell ‘C.’ that I have consulted Mr. Taylor, and the

gentleman who is over that part of the office in Red Lion Court which is more especially appropriated to the periodicals there published, and that neither of them has any recollection of having ever received the paper upon Saxifrages from Mr. Andrews, although they do remember receiving a letter asking them to return such a paper, and also of having answered it, by denying their having the paper." I am authorised, also, to add, in their words, that "the paper would have been inserted if it had reached their hands." I must also direct attention to the fact that Mr. Watson had plenty of time to withdraw that incorrect charge against the *Annals*, between the 9th or 10th of April (when he doubtless received my letter) and the time of publication of the May number of the '*Phytologist*.' Even supposing, as is most improbable, that the first sheet of that number was printed off before he had the means of making the correction, he was bound to do so on the second sheet, or on the cover. A letter giving similar information was addressed to the editor of the '*Phytologist*,' for the information of "C.", on the 7th of April; and as Mr. Lees' paper, which is printed upon the same sheet as Mr. Watson's, is dated upon that day, it is indisputable that the refutation was in the editor's hands long before the sheet containing the charge was printed off.

I am stated to have been present when Mr. Andrews' paper was read, which I fully believe was not the case. No notice, as far as I can find out, was given in the Journal of the Sectional Proceedings, of the intention to read such a paper; and as I was fully occupied with the important duties of the Treasurership during the whole of that meeting, I was unable to attend the section with any regularity. I was in the chair during the session of one day, and present during part of another day, but, I believe, absent on the other days. Even had I been present, I could only have congratulated Mr. Andrews upon his discovery, but objected to his conclusions concerning species. I now learn from the '*Athenæum*,' that his was the last paper read to the section.

I avoid all notice of the personal, or, as Mr. Watson calls them, ethical, matters contained in the paper, as a scientific journal is not the place for giving or retorting insinuations of a want of the "sense of truth and right."

It is only necessary to add, that I do "make it my duty and desire to know something about" papers which "refute, by facts, any considerable error that has been sent into public circulation by myself;" and that if Mr. Watson did not see by my former remarks, that I could not know anything [of] a paper of the locality of which I and

my friends were ignorant, he certainly must have [seen] that I had no means of becoming acquainted with it when he received the letter which contains the above-quoted extract.

C. C. BABINGTON.

St. John's College, Cambridge,

May 4, 1849.

P.S.—It may be as well to state, that I had no reason to suspect that my generalisation, and “apparently curious discovery,” was “too hasty,” as I had employed the intervals between July 7 and July 24, in the year 1841, and between August 29 and September 15, in the year 1843, in the county of Kerry, on both occasions making the study of the Robertsonian Saxifrages my primary object. Before generalising, I had examined thousands of living specimens, and not “trusted to the characters of an insufficient series.” I still believe that the plants with dentate leaves are by far the more common in Ireland, and those with them crenate in the Pyrenees.

A few Words in explanation of my “odd mistake,” as mentioned by “C.” By JAMES BACKHOUSE, JUN., Esq.

WHILST entirely accepting the charge of misunderstanding “the subject at issue,” and not wishing in any way to prove discretion where there is indiscretion, I wish to inform “C.” that his remarks in the ‘Phytologist,’ at page 451, were liable, and indeed almost *certain*, to be misunderstood.

Had I not been accused of “inattention, sheer carelessness, irrelevance,” &c., in rather a hasty way, I should not have thought “C.”’s last paper worth answering, or now ventured to *trespass* upon the pages of the ‘Phytologist.’

In “C.”’s quotation from Andrews, *two* main points are touched upon; viz., the *identity* of the *forms* of *S. Geum* and *umbrosa* in Ireland and the Pyrenees; and “*further*,” the transition of these forms into each other being so complete, as to *set aside any pretension to specific difference* between *hirsuta*, *elegans*, and *serratifolia*. “*This view of the subject*” (says Andrews) “has since been confirmed by Mr. Spruce but Mr. Babington has not yet found time to *correct any* of the statements where they have been so positively asserted by him.”

“C.” confirms the statements of Andrews respecting the variable-

ness of the forms and serratures of the leaves of the Irish Saxifrages, and their general identity, in these respects, with Pyrenean specimens.

Afterwards comes a dissertation upon the accuracy, &c. of Babington; followed by "C."’s opinion, that there is a scientific, if not a moral, obligation for the former to correct his "error."

Now surely there is nothing "odd" in a reader of the 'Phytologist' supposing that this "error" alludes to the *two* points of Andrews' sentence, as "C." does not state that he means it *only* to apply to that part which he commented upon.

The quotation from Andrews certainly refers to *specific distinctness* as *part* of that (error) which Babington had not found time to correct. Whether "C." has mutilated the original, or selected passages which convey an incomplete view of Andrews' sentiments, is not for me to say; but the *words given* in the quotation do connect (unintentionally, no doubt) the error with *specific distinctness*; and "C."’s "error" evidently alludes to that inferred by Andrews.

Is it strange, then, and inexplicable, that I should suspect "C." of coinciding with Andrews on the point of *specific distinctness*?

It must be remembered that Babington, in his 'Manual,' gives *Saxifraga umbrosa*, *elegans*, *hirsuta*, and *Geum* as distinct species, and that Andrews (according to the quotation) differs with him in opinion on this subject.

I make no doubt whatever of having misunderstood what "C." informs us now that he intended to convey, but which he certainly *did not convey clearly*.

From the last number of the 'Phytologist' it appears that "the strictly scientific point of the case may now be considered as settled;" if so, may I ask "C." and others to pass over the "objectionable" parts of my last paper (the title and first paragraph), and consider the subject of hybridization carefully, in connexion with the Irish Saxifrages?—the question of their *specific distinctness* (or the contrary) assuredly is *not* settled satisfactorily.

In conclusion, I would recommend, that if "C." (or any writer) gives another paper on this or any other subject, he bring out his *name* openly, as my previous "strictures," "false witness," &c. would probably have been spared had he done so before. In a journal like the 'Phytologist' no one ought to suppress his name, to make remarks in secret which he would *shrink* from making openly. A mere alphabet letter like "C." or W. ought not to expect that politeness which is *due* to an honest name.

J. BACKHOUSE, JUNR.

York, May 5, 1849.

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[As this controversy has ceased to be instructive, and adds nothing to our botanical knowledge, I hope it will now cease altogether. I am very reluctant to refuse admission to any communication, or to afford a contributor the opportunity of saying he has not been fully and fairly heard; but I would suggest to the parties concerned in the present discussion whether anything can be gained by prolonging it.—*Edward Newman*].

Notice of 'The Ancient Straits of Malvern. An Essay on the Former Marine Conditions which separated England and Wales, and an Account of the Probable Physical Changes by which the Principality has become united to Great Britain.' By JAMES BUCKMAN, F.G.S., Professor of Geology and Botany in the Royal Agricultural College, Fellow of the Botanical Society of Edinburgh, Honorary Local Secretary of the Botanical Society of London, Honorary Member of the Cheltenham Literary and Philosophical Society, of the Gloucester Philosophical and Literary Society, etc. London: Longman, Brown, Green, and Longmans.

THE title is so explanatory that any attempt on our part to set forth the author's object would be quite superfluous. With great modesty he informs us that "The discovery of the Marine Plants is, perhaps, the only new feature of the present paper." This we fully admit; indeed, we were almost inclined to doubt the novelty of *this* feature, seeing that the several localities of the plants have been previously recorded, although their presence has been generally attributed to the escape of brine from the salt-works into the canal at Droitwich: this explanation Mr. Buckman is not inclined to receive. He admits that this escape of salt-water induces the conditions necessary to *maintain*, but not to *originate*, a littoral flora. He observes:—

"The distance of this canal from the usual localities of these plants, and the fact that the boats from the canal do not in general venture into the broad estuary, and a consideration of the accidents the few seeds would be subject to that might by possibility get into a boat, do not appear sufficient to account for the enormous quantity of these plants, which at present occur in *patches often a considerable distance apart*, on the banks of the canal in question."

We believe botanists will generally admit that plants will make

their appearance in localities where the conditions necessary to their well-being are fulfilled; thus we find *Sphagnum*, *Drosera*, *Narthecium*, and a hundred other plants in spots possessing the conditions they require, although no other localities occur for miles around: nay, it is almost impossible to cut a canal without having it half choked with water-plants unknown in the neighbourhood. *Typha*, *Lythrum*, *Butomus*, and *Alisma* luxuriate in the cavities made to supply the embankments of the Eastern Counties, South Eastern, and other Railways; they come immediately, no one knows from whence. Under these circumstances it does not seem extraordinary that salt-loving plants should appear at Droitwich, where earth, air, and water appear to be loaded with salt.

We extract Mr. Buckman's interesting

"List of Marine Plants now growing in the Valley of the Severn."

"Scirpus maritimus. This salt-marsh plant occurs in considerable quantity in the ditches of Longdon Marsh, near Upton-on-Severn, Worcestershire, which doubtless at an earlier period constituted a great back-water of the Severn estuary, and at the present time its level is lower than the bed of the adjacent river, so that it has been impracticable to drain it.

"Gastridium lendigerum. This grass is seldom found except close to the sea, but Mr. Lees found it in Sarnhill Wood, a lias eminence on the western side of the Severn, near Tewkesbury.

"Poa distans. A grass commonly found on the sandy sea shore, but flourishing abundantly on the banks of the Droitwich Canal.

"Triticum junceum. Also growing by the side of the Droitwich Canal.

"Iris foetidissima. Most common and luxuriant on the sea coast, but forming actual thickets in Sarnhill Wood. Growing also on the Berrow Hill, a lias eminence near Bromsberrow, as well as in the Vale near Cheltenham.

"Lepidium rudemale. Stated by Dr. Stokes as growing above Worcester many years ago, and found on the banks of the Droitwich Canal in 1847.

"Erodium maritimum. On various rocks and banks about Bewdley and Kidderminster, as well as around Hartlebury Common, near Stourport.*

* This is a large common, made up of marine sand, which, at the present moment, is open and exposed, and the sand drifts about like sand on our present sea shores, presenting all the effects of sand hummocks or dunes.

"*Rosa spinosissima*. Near Worcester and Kidderminster, on deep sands. Most abundant on the coast.

"*Apium graveolens*. Abundant in ditches throughout the vale of Severn, from Worcester to Cheltenham and Gloucester. Also fringing the Droitwich Canal most luxuriantly.

"*Bupleurum tenuissimum*. On Barnard's Green, near Great Malvern, Welland Common, near Upton, and on the Nunnery Farm, near Worcester, on the Spetchley road. Mr. Edwin Lees.

"*Enanthe pimpinelloides*. This umbelliferous plant well illustrates the case in hand. At present it flourishes abundantly on the coast of Devon and near Weymouth, but appears to be confined to the south-western counties of England. Its abundance in meadows at Forthampton, near Tewkesbury, and at Powick, three miles west of Worcester, is truly astonishing. In fact this plant may be traced, as my friend Mr. Lees informs me, from Wainlode Cliffe, between Tewkesbury and Gloucester, all up the Severn valley to Worcester. At Powick the plant appears to grow on the margin of the great backwater, that at some former period extended in this direction. It also grows at Maddresfield, within three miles of the Malvern Hills.

"*Smyrnum Olusatrum*. This common sea-side plant, at the present time, grows plentifully at the base of the red marl cliff at the Mythe, near Tewkesbury. It is also mentioned by Dr. Nash, in his 'History of Worcestershire,' as occurring in great profusion at Hill Croome, in that county.

"*Glaux maritima*. This pretty little littoral plant flourishes in the greatest profusion on the side of the Droitwich Canal, between Bevereye and Salwarp, above Worcester.

"*Samolus Valerandi*. Mostly in salt-water marshes. On Defford Common, an extensive flat, five miles east of Upton-on-Severn, which was once probably a saline marsh.

"*Plantago maritima*. A decided coast-plant. Recorded in the 'Phytologist' as having been found on Hartlebury Common, by Mr. Reece, of the Worcester Museum.

"*Atriplex rosea*. Gathered on the banks of the Droitwich Canal, by Mr. T. Westcombe, of Worcester.

"*Rumex maritimus*. Noticed by my friend Mr. E. Lees, most abundantly in the Longdon Marshes, and also gathered by him at the chalybeate pool, Great Malvern, and on the side of the Severn below Worcester bridge.

"*Arenaria marina*. In some quantity in various spots close to the edge of the saline Droitwich Canal. There appears to be a curi-

ous difficulty with respect to the *exact species* of this plant, as Mr. Babington of Cambridge, to whom Mr. Lees sent specimens, thought it exactly *intermediate* between *A. rubra* and *A. marina*.

"The plants in this list though not all perfectly marine, are yet such as generally *elect to grow by the sea side*, hence their prevalence in the district under review affords good evidence that marine conditions once prevailed along the greater part of the valley of the Severn, and that the marine waters were far wider than the reach of even the floods of our day."

Notice of 'The Sea-Side Book. By W. H. HARVEY, M.D. London: Van Voorst. 1849.'

A VERY pretty book with a very good title, and from beginning to end replete with solid and valuable information. The illustrations are numerous and admirable, and the getting up of the book is everything that could be desired.

There is, however, a little drawback to this encomium. Dr. Harvey is known to be a profoundly philosophical writer, more especially profound and philosophical on the productions of the sea; and having justly acquired a reputation for great knowledge—we had almost written wisdom—he finds it difficult, or thinks it undesirable, to descend to that familiar style which attracts the student, and which is really required to maintain any lasting hold on the attention of the holiday rambler on the beach of a summer sea. We are aware how very rarely are united in the same individual, knowledge and the power of communicating it attractively; hence the unpopularity of correct, the high popularity of incorrect books. It seems to matter little to the reader what blunders may occur in transposition of names, or mis-statement of facts, provided such blunders and mis-statements are served up in agreeable and perspicuous language. How greatly is it to be deplored that those who possess the knowledge will not stoop to the *mental calibre* of those who read. We use this term in no offensive sense, but we draw a marked and permanent distinction between the mode of addressing scientific truths to a Robert Brown, or a Hewett Watson, and that mode required by our wives and children; and a sea-side book, with its pretty illustrations and attractive cover, is apparently designed for our wives and children, rather than for our Browns and Watsons. The first edition is sure to sell—Dr.

Harvey's name, Mr. Van Voorst's getting up, and its own intrinsic scientific merits will ensure that : and we earnestly intreat the amiable and distinguished author to write the second in a different style, and adapt it for those to whom it seems more especially addressed ; to leave out the philosophical and almost Newtonian introductory chapter, and fancying himself strolling on a sandy beach with friends of the gentler sex, and active, light-minded youngsters, write as he would talk to them of the infinite wonders of the deep. It would be in accordance with the usual plans of critics to prove our allegation by quoting the passages which more especially call forth our remarks ; we might aptly cite his views of "The enunciation of inductive philosophy," of "scientific classification," of the "alternations of generation," or any of the more abstruse portions of the little volume before us ; but we prefer selecting a passage in his lightest style, and on a subject—sea-weeds—which he has made peculiarly his own.

"Sea-weeds are usually classed by botanists in three great groups, each of which contains several families, which are again divided into genera ; and these, in their turn, are composed of one or many species. The number of species as yet detected on the British coasts is about 370, and they are grouped into 105 genera. I cannot, in this place, enter into the niceties of classification to which botanists resort in working out the history of these plants, but must confine myself to the general features of the great groups, and their distribution. Taken in the order in which they present themselves to us on the shore, and limiting each by its most obvious character, that of colour, we may observe :—that the group of green sea-weeds (*Chlorospermæ*) abound near high-water mark, and in shallow tide-pools within the tidal limit ;—that the olive-coloured (*Melanospermæ*) cover all exposed rocks, feebly commencing at the margin of high-water, and increasing in luxuriance with increasing depth, through the whole belt of exposed rock ;—but that the majority of them cease to grow soon after they reach a depth which is never laid bare to the influence of the atmosphere :—and that the red sea-weeds (*Rhodospemæ*) gradually increase in numbers, and in purity of colour, as they recede from high-water mark, or grow in places where they enjoy a perfect shade, or nearly total absence of light, and are never exposed to the air, or subjected to a violent change of temperature.

"The green sea-weeds are the simplest in structure, and the least varied in species, on different coasts, and consequently the least interesting to the collector of specimens. With the exception of the beautiful genus *Cladophora*, which contains about twenty species, our

British Chlorosperms are chiefly composed of *Ulvæ* and *Enteromorphæ*, whose forms vary with so little order, that it becomes difficult, and, in some instances, hopeless, to attempt to classify the varieties. The *Enteromorphæ* are the first to make their appearance about high-water mark, covering loose boulders or smooth rocks with a slippery vesture of bright green, or filling the shallow tide-pools with grassy fronds. These plants consist of tubular membranes, simple or branched, appearing to the naked eye like fine green silk, and showing to the microscope a surface composed of minute cells, full of granules. The commonest species near high-water mark is *E. compressa*, which commences of a very stunted size, and with thread-like branches, if exposed to the air, and gradually acquires length and breadth as it grows in deeper water. When fully developed, it has a frond divided nearly to the root into many long, subsimple branches, which bear a second or third series, all of them much attenuated at their insertion, and more or less distended at the extremity. The diameter of the tube varies extremely, and the broader and simpler individuals are only to be known from *E. intestinalis*, by their being branched; the tube in the latter species being absolutely simple. To the *Enteromorphæ* succeed *Ulvæ*, distinguished from *Enteromorphæ* merely by being flat, instead of tubular. The beautiful lettuce-like plaited leaves found in tide-pools, belong to plants of this genus, the commonest species of which is *U. latissima*. It has a very broad, more or less ovate, plaited leaf, of a brilliant green, and remarkably glossy, when in perfection reflecting glaucous tints, if seen through clear seawater, and is certainly a very ornamental species. It is sometimes brought to table as a laver, or marine sauce, but it is much inferior in flavour to the purple laver (*Porphyra laciniata*), a plant of the same family, equally beautiful, equally common, and more generally collected for food. The purple laver grows on exposed rocks near low-water mark, and though called purple, assumes at different seasons of the year different shades of colour, according to its age. In form it resembles the green laver (*Ulva latissima*), but is of a still more delicate substance, consisting of a perfectly transparent and very thin membrane, elegantly dotted with closely set grains, to which it owes its colour. When these grains are in perfection, they are of a dark violet-purple; and this is the case in winter and early spring, when the plant is collected for the table. Later in the year the fronds are of stunted size, and more or less olivaceous colour, and much less suitable for gathering. The plant appears to be of very rapid growth and decay, a few weeks sufficing for its full development. Like many fugi-

tive plants, however, it is not confined to one season, but continues to develop throughout the year; but with this difference, that the plants developed in summer are very much smaller, more tenacious, and of a dull colour. These last are regarded by some authors as a different species, and called *P. umbilicata*.

"There is a circumstance connected with the history of our common *Ulvæ*, *Enteromorphæ*, and *Porphyræ*, which deserves notice. Most of the species common to the European shores are found in all parts of the world to which a marine vegetation extends. In the cold waters of the Arctic sea, *Ulva latissima*, *Enteromorpha compressa*, and *Porphyra laciniata* vegetate in abundance; and these same plants skirt the shores of tropical seas, and extend into the southern ocean as far as Cape Horn. Vegetation, at least with its most obvious features, ceases in the south at a much lower parallel than in the Arctic regions, and the shores of the Antarctic lands appear to be perfectly barren, producing not even an *Ulva*. But the fact of the great adaptability of plants of this family to different climates, is beautifully illustrated by the last land plant collected by the acute naturalist attached to our Antarctic expedition. The last plant that struggles with perpetual winter was gathered at Cockburn Island, 64° S. (a latitude no greater than that of Archangel, where the vine is said to ripen in the open air), and this proved to be an *Ulva* (*U. crispa**), identical with a small species which may often be seen in this country on old thatch, or on damp walls and rocks, forming extensive patches of small green leaves. It is not common to find marine plants with so wide a distribution; but a nearly equal extent of sea is characterized by another of the British *Chlorosperms*, of a much greater size and more complex structure. On most of the rocky coasts of Britain may be gathered, in tide-pools, or rocks near low-water mark, an *Alga* of a bright green colour and spongy texture, cylindrical, and much branched, the branches dividing pretty regularly by repeated forkings, and the whole invested, when seen under water, with a downy coat of colourless filaments. The name of this plant is *Codium tomentosum*. Under the microscope it is found to be wholly composed of small threads, of a tenacious, membranous consistence, filled with a dense granular fluid, closely and intricately matted together; the threads in the centre of the branches having a longitudinal direction, while those of the circumference are horizontal, presenting their

* See 'Flora Antarctica,' vol. ii. p. 498. In the northern hemisphere, *Ulva crispa* extends to Spitzbergen, in lat. 80°.

closely set tips to the surface of the frond. This plant abounds on the shores of the Atlantic, from the north of Europe to the Cape of Good Hope: it appears to be equally common in the Pacific, extending along the whole western coast of the American Continent: it is found in the Indian sea, and on the shores of Australia and New Zealand: nor is there any certain character by which the specimens of one country may be known from those of another.

“Allied to the *Codium* in structure, and not uncommon in rock-pools, is a slender and extremely elegant little plant, *Bryopsis plumosa*, which consists of a multitude of soft green feathers gracefully connected together. Its substance is exceedingly flaccid, and the branches fall together when removed from the water, but immediately expand on re-immersion. Few of our marine plants are more beautiful; and the pleasure of admiring its graceful characters may be indefinitely prolonged, as it is one of the plants which may be most easily grown in bottles of sea-water. Whilst it continues to vegetate, it will keep the water sweet and pure, and no care is needed except to close the mouth of the bottle, so as to prevent evaporation. The *Bryopsis*, in all its characters, has the structure of a vegetable; nor does it much resemble the zoophytes in aspect. And yet it is one of those plants which closely link the lower members of the vegetable kingdom with those of the animal. Through *Bryopsis*, the passage is very clear into *Acetabularia*, an elegant Mediterranean plant, which closely resembles a zoophyte, and which was, indeed, till lately, classed in that division of animals. Instances of this kind of seeming connexion between the two great kingdoms of the organized world, meet us frequently among the lower groups of either, and often, as in this case, where connexion is least looked for. The genus *Cladophora*, to which I have already alluded, consists of the branching species of the green division of the old genus *Conferva*. These plants are formed of strings of cells, one cell growing from the apex of another, so as to form a jointed thread. The species are distinguished by differences in the branching, in the proportionate length of the cells, and in their diameter; and nearly all of them are beautiful objects. They mostly form scattered tufts, in rock-pools, but some occur gregariously in extensive patches, covering rocks or fuci with a bright green fringe.”

K.

DUNDEE NATURALISTS' ASSOCIATION.

May 1, 1849.—The President in the chair.

A paper was read by Mr. J. Wyllie, being a visit to Glenearse, Perthshire.

A note on the British species and varieties of *Symphytum* was read from Mr. Geo. Lawson, who called attention to these plants, suspecting that their nomenclature is somewhat confused, and that they are not very clearly known, with the view of ascertaining more accurately their distribution and relative frequency in Forfarshire.

Mr. Ogilvie exhibited some very fine specimens of *Bryum carneum*, from the Den of Mains, being a new locality for the plant.

A donation to the library was announced from Mr. Lawson; also 'The Nomenclature of British Plants' from Mr. Ibbotson.—*W. M. O.*

Inquiry respecting the Class and Order to which certain Genera of Plants belong. By GEORGE M. BARTLETT, Esq.

You would confer a great favour on the readers of the 'Phytologist' at our Devon and Cornwall Natural History Society, if you would be kind enough, in your next number, to inform us to what class, order, &c. the genera of plants mentioned in the 'Geography of Plants,' by Meyen, &c., belong—viz., *Phippsia*, *Parrya*, *Eutrema*, *Platypetalum*, *Colpodium*, *Duponia*, and *Pleuropogon*; the above work not even mentioning whether they are Monocotyledonous or Dicotyledonous,—a strange omission, considering the importance and peculiar interest attached to their history, as a part of the Arctic Flora, as new genera, &c.

G. M. BARTLETT.

Plymouth, May 10, 1849.

[*Colpodium* of Trinius, *Dupontia* (not *Duponia*) of Robert Brown, *Phippsia* of Robert Brown, and *Pleuropogon* of Robert Brown, belong to the natural order Gramineæ and class Endogens. *Eutrema*, *Parrya*, and *Platypetalum*, all of Robert Brown, belong to the natural order Brassicaceæ, and to the hypogynous division of the class Exogens.—*Edward Newman.*]

Occurrence of Stereocaulon tomentosum in fruit.

By W. M. OGILVIE, Esq.

WHILE botanizing with my friend Mr. Gardiner on the South Ferry Links, Fifeshire, on Saturday last (5th), among other rarities collected was *Stereocaulon tomentosum*, which we found in various places, in considerable abundance. After reaching home and beginning to lay out my day's collection, I found I had got a greater rarity than I anticipated—some of the *Stereocaulon* being in fruit. As this is the first time, so far as I am aware, in which the fruit has been found in Britain, I think it worthy of record in the pages of the 'Phytologist.'

W. M. OGILVIE.

20, Castle Street, Dundee,

May 11, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 536).

Ligustrum vulgare. In woods, thickets, hedges, bushy places, and on banks, over a great part of the Isle of Wight, most abundantly. Plentiful everywhere about Ryde, and throughout the tertiary or fresh-water formation, constituting a considerable proportion of the brush or undergrowth of our woods and hedgerows. Profusely in most of the chalk districts, rarer on the greensand, and a great ornament where it abounds, loading the air on a hot day in June or July with the sweet but somewhat cloying fragrance of its beautiful milk-white flower-spikes, and decking copse and tufted hedgerow no less in autumn with its pyramidal clusters of polished purple-black berries. Less universal, I think, in mainland Hants than in the Isle of Wight, yet very abundant in many parts of the county, particularly on the chalk. Everywhere about Andover and Appleshaw, in plenty. Abundant in Bordean Hanger. Maindell chalk-pit. Fareham; Mr. W. L. Notcutt !!! and many other places. The leaves with us are partially persistent, and with various species of *Rubus* give a welcome tint of green to our hedgerows in winter. The long straight shoots of the privet, from their toughness and pliability, are used in tying up small

bundles or faggots of fire wood by the country people ; and parties of children may often be met, coming from the copses, with their arms full of these primitive ligatures, unconscious of the support they are giving to the sometimes mere fanciful conjectures of the classical etymologist.*

Fraxinus excelsior. In woods, copses, hedgerows, and hilly pastures ; everywhere common. The "*Fraxinus in sylvis pulcherrima*" is, next to the elm, the tree which attains to the greatest magnitude, as timber, of any indigenous to this island, and is second to none but the oak in value.

Vinca minor. In woods, copses, groves, and on hedge-banks in lanes, not uncommon and truly wild in various parts of the county ; very rare (in that state) in the Isle of Wight, less unfrequent in a naturalized condition. Truly indigenous and profusely abundant in a hilly copse called Bottomground, about half a mile west of Idlecombe farm, betwixt Carisbrook and Shorwell (Phytol. i. 328). About St. John's, the Priory, and at Nunwell, naturalized. In a little wood near the house lately occupied by Captain Deare, West Cowes ; Miss G. E. Kilderbee. I found it plentifully some years since in a lane near Twyford, a few miles from Winton, and in a copse betwixt Bramdean and West Meon, 1838. Millam Copse, East Meon, in great plenty ; Miss G. E. Kilderbee. Langrish ; *Ead.*!!! Sinkhorn's Copse, Otterbourne, in great profusion ; Miss A. Yonge. On a high bank betwixt Petersfield and Nurstead, and in a chalky pasture at Privet, near Petersfield, 1848. Hale Down field. Lane betwixt Warnford and West Meon ; Miss E. Sibley. Doubtless in innumerable other places, being a plant of decidedly frequent occurrence in the woods of the south of England, particularly on calcareous soils, often found covering the greater part of a large copse with a carpet of the deepest verdure, its own lovely flowers interwoven with the primrose and wild hyacinth in all the freshness of vernal bloom and beauty. A native throughout central Europe, from England eastward to Poland and Russia.

† *Vinca major.* Half wild on hedge-banks, in garden fences, under walls, palings, and about shrubberies, frequent ; also in woods, thickets, and shady lanes occasionally, always with some, though often but obscure, indications of having become naturalized in such stations. Margin of the copse wood on the shore a little west of Ryde, but sparingly, and only by a made road through the wood, and too near

* *Ligustrum*, from *ligo*, to tie or bind.

the town. Amongst brushwood on a high bank of slipped clay at Watch House Point, St. Helens, in great plenty, and fructifying freely; but the place appears to have been a look-out station in former times, though now quite wild and abandoned; and I once found a beam or rafter, in a state of decay, close to where the plant grows, showing it to have been the site of an habitation, about which the Vinca was probably planted. Plentiful along a hedge in the by-road from Net-leston Green to Sea View, doubtless escaped from the shrubbery at Fairy Hill. In similar places about Norton, Yarmouth, Godshill, &c., as well as on the mainland of Hants; not uncommonly. Scarcely a native north of latitude 45° , and therefore excluded from nine-tenths of the floras of central Europe; whilst in the remainder, as those of Paris and Switzerland, its claim to insertion is not better than with ourselves.

Chlora perfoliata. In woods and pastures, on banks and cliffs by the sea; very common in the Isle of Wight, growing both on the wettest clay and the driest chalk. Frequent on the banks of slipped clay along the shore on both sides of Ryde, and plentiful on the steep face of the chalk cliffs at the upper end of Sandown Bay. About Luccombe Chine, Shanklin, Ventnor, and indeed along the entire line of coast round the island, and equally frequent in the interior, as about Carisbrook, Newport, and most other places. Hardly less frequent, I believe, on mainland Hants, but I have not paid attention myself to its distribution in that part of the county. On Bordean Hill. In Maindell chalk-pit; Mr. W. L. Notcutt (in plenty, October, 1848). Plantation by Wheely Cottage, near Warnford; Rev. E. M. Sladen. Selborne; Rev. G. White: probably common over the entire county.

The beautiful golden yellow flowers expand only in sunshine or a strong light, closing early in the afternoon (about two) for the rest of the day, and not opening again till the following morning about eight or nine. If a handful of the plant be gathered and placed in water, the flowers will continue to open and close at the accustomed hour for several successive days; when once shut, exposure to the sun's rays proves insufficient to stimulate them to expand a second time, until the usual period of repose has elapsed. The ovary of this plant is full of a greenish yellow and very glutinous, but scarcely bitter, juice, only found in that particular part; the rest of the herb is very bitter, but juiceless.

Erythræa pulchella. In dry sandy or gravelly fields, pastures, and waste places, not unfrequent, though less common than the fol-

lowing, of which I am much disposed to hold it a variety. About Ryde and Cowes, as on Ryde Dover; Mr. Wm. Wilson Saunders !!! Above the shore to the west of Yarmouth. At Ryde; Mr. J. Woods in Bot. Guide. Freshwater Village; Rev. G. E. Smith.

Erythræa Centaurium. In dry fields, pastures, woods, and bushy, heathy places; very common. About Ryde, in Quarr Copse, &c. Woods at Yarmouth, Cowes, Freshwater, &c., plentiful. Common throughout the county, in Hayling Island, &c. Occasionally with white flowers near Thorley and elsewhere, but not frequent.

———— *linarifolia* (E. littoralis, Sm.). On sandy shores and banks by the sea, but rarely? Alum Bay, betwixt Groves' Hotel and the sea; Dr. Martin! Sea banks near Compton Bay; Mr. W. D. Snooke. Headon Hill, within twenty yards of Mr. Ward's cottage; Miss G. E. Kilderbee! but I am dubious if belonging to this species, which I confess not to be well acquainted with, and to have hitherto neglected examining. All our four kinds of *Erythræa*, indeed, resemble each other too closely in essential characters to be perfectly satisfactory species; and I think much of the differences in habit, branching, form of leaves, and relative length of calyx and corolla, may be owing to soil and situation. N.B. *E. latifolia* has been stated to me by the Rev. E. M. Sladen to grow on Southsea Common, Portsmouth.

Cicendia filiformis. In damp, sandy, heathy places, by road-sides, and in cart ruts in the south-western parts of the county, towards the coast; rare. Near Christchurch; Mr. J. Hussey, 1847! In cart ruts on sandy heaths near Avon Cottage, by Ringwood; Mr. J. Curtis and the Hon. C. A. Harris (Icon in Brit. Entom. vol. xiv. t. 628, from a Hamps. spec.). I have constantly been expecting to fall in with this plant in the Isle of Wight, where on geographical grounds its existence might almost be predicted with confidence; for though it has hitherto eluded observation, I am persuaded it will eventually manifest itself, one of these *fine* days, to some lucky explorer of our island; sandy heaths, probably towards its north-western extremity, being the nearest part to that portion of the opposite coast where it is known to grow. A plant so small and slender, and whose flowers open only in bright sunshine, may easily escape detection for a long time, yet turn up abundantly at last. *Cicendia filiformis* is very common about Poole, in Dorsetshire, and to the eastward of us in St. Leonard's Forest, Sussex; the chances are therefore very greatly in favour of its occurrence in an intermediate station, to the westward of the last, and enjoying an insular position, the species being amongst those most strongly

characteristic of the maritime, southern, and occidental flora of Britain.

Gentiana Amarella. On dry hilly and chalky pastures and banks, in various parts of the Isle of Wight and county, but not very common. Plentiful in certain years all around Carisbrook Castle, on the hill and in the moat; (profusely on the north-east side of the castle, on the turf above the carriage-road, September 14, 1848). In White Pit, by Newport, abundantly, and at Binstead, 1839. About Bonchurch, Swainston, Rowledge, Westover, Yarmouth, Freshwater, and on the high downs in most parts of the island, here and there. Equally common, I believe, on the mainland of Hants. Plentiful along the crest or ridge of Portsdown Hill, by the road-side east of the Nelson monument, October, 1848. Maindell chalk-pit; Mr. W. L. Notcutt!!! A variety of this species having the calyx segments very unequal, two of them considerably larger and longer than the three others, but neither ovate nor concealing the latter as in *G. campestris*, I found, May 31, 1841, on the dry chalk down above Sandown Bay. Some of the lower flowers had the calyx 4-cleft,—in these the difference of size in each alternate segment was very conspicuous, the smaller, shorter, and inner being linear, the outer and larger ovate-lanceolate.

?*Gentiana campestris.* On dry, elevated, gravelly or chalky pastures, and limestone hills. Never seen or met with by me in or from the subjoined stations, although a plant extremely likely to grow in this county and island. I fear the last species has been mistaken for it (possibly the variety just described), on some at least of the alleged localities; yet from the great probability of its occurrence, and the respectable authority of the reports, I am unwilling to exclude the field Gentian from our indigenous list merely because no examples have been seen by myself. I shall be glad to have these doubts removed by receiving specimens from some obliging correspondent. Heathy pasture between Colwell and Weston (Freshwater parish), plentiful; Mr. W. D. Snooke: I have searched for it there in vain. My valued and scientific friend Dr. Martin, in his recently-published excellent work on the natural history, &c. of the Undercliff, gives "Downs above Steephill" as producing this species, which as yet I can neither corroborate nor disprove. One or more stations have been given me for the mainland, but as being on dubious authority, I forbear to quote them here.

————— *Pneumonanthe.* On moist turfy or boggy heaths, but rare; not yet found in the Isle of Wight, and apparently confined to the south-west or New Forest district of the county, near the borders

of Dorsetshire. On both sides of the path leading to the decoy pond in the New Forest, sparingly, August 3, 1841; Mr. T. B. Flower! Near Christchurch, 1847; Mr. James Hussey! Parley Heath; Mr. Curtis in litt., and in Brit. Entom. vi. tab. 281 (drawn from a Hants specimen). This very beautiful plant will most likely be found in our eastern forest tracts of Bere, Holt, Aldershot, &c.

Menyanthes trifoliata. In boggy, marshy places, wet or peaty meadows, drains, &c., in various parts of the Isle of Wight, but not very common. Sparingly in Sandown Level. At Easton Marsh, Freshwater Gate, and elsewhere in that parish; on Colwell Heath, and near Thorley. Near Alverstton Mill, and in Alverstton Lynch. On Kingston Moors; between West Court and Sandy Way, by Shorwell. Boggy meadow in the valley of the Medina, near its source, &c. Common in mainland Hants. Very fine and abundant in Winal water meadows, by Winton. Meadows at Wonston, Bullington, Barton Stacey, &c.; Rev. D. Cockelton. Itchen Stoke; Miss L. Legge. Andover; Mr. Wm. Whale. Chilbolton, Boarhunt, Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. The plant may be looked for with tolerable certainty, in full flower, before the middle of May in this part of England (see Phytol. iii. 203). N.B. *Villarsia nymphæoides* is naturalized in a small pond in a field betwixt Ryde and Brading, where it was introduced by my friend Dr. Salter, and in which *Hydrocharis morsus-ranæ* and *Stratiotes aloides* are perfectly established, though not indigenous to the island. The *Villarsia* may be reasonably expected in some of the larger rivers and still streams of mainland Hants. I have gathered it in Sussex, in ditches on Lewes Level; but it is difficult to say where this elegant aquatic is truly native or where introduced, so extreme is the facility with which it becomes naturalized from the smallest fragment thrown into the water, yet is the species one of considerable rarity, and of very local distribution in its truly wild state.

Convolvulus arvensis. In corn-fields, gardens, waste ground, at the foot of walls, on hedge-banks, and by way-sides; most universal and abundant over the entire county and island. Varies with us in the colour of the flowers, which are often nearly two inches across, from the deepest and most vivid rose-red or peach-blossom to nearly white, mostly with an indented or zig-zag ring of bright crimson a little above the very short yellowish tube. Very profuse and richly coloured about the sandy cliffs of Sandown Bay, where, as in other places,*

* Near Hastings, and at Gravesend.

I have gathered ripe capsules in abundance, not, I believe, very generally perfected. It is certainly a pretty sight to behold the corn-fields and road-sides adorned with ten thousand of its beautiful and fragrant bells, wide opened and upturned to the midday sun of June and July, or festooning some green hedgerow to its topmost branch; but neither its beauty nor delicate almond perfume can find it favour in the eyes of the farmer, who too well knows it as a grievous adversary in his moist corn-fields, twining around the stalks of the wheat, and if not strangling the crop, doubling the labour and difficulty of getting it in. The flowers wholly or partially close at night, or in damp, cloudy, or rainy weather, as well as in the afternoon. I have gathered this species at Boston, United States, where it is quite naturalized, and pretty plentiful on banks about the city; the flowers uniformly smaller and paler than is usual in Europe.

Convolvulus sepium. Everywhere over the island and county, extremely common in moist hedges, thickets, and amongst bushes; in osier-beds, damp gardens and shrubberies, also trailing over the sea-beach occasionally, with leaves more or less fleshy. Var. β . Flowers pale rose-red or blush colour. In several parts of the Isle of Wight, in considerable plenty. On wet slipped land, amongst bushes, above the shore a little to the eastward of Old Castle Point, in some abundance, September, 1840; also in a willow plot betwixt Dean farm and Whitwell, and near Roude. Near Newchurch; Dr. T. Bell Salter. East bank of the Yar, along the edge of Beckett's Copse, August 28, 1845; and with a decidedly rose-coloured limb to the flower, in a large willow-bed betwixt Compton and Dunsbury farms, Freshwater, September 24, 1844. Dr. Salter finds the same deeper tinted variety near Lymington; in this island, however, the corolla is rarely more than suffused with a faint blush of red, though in some parts of England the flowers are found of a deep rose-colour, and I have myself gathered such in Guernsey. A similarly coloured variety appears to be the commoner form in America of this widely-diffused species, which under the foregoing or following states is indigenous over a great part of both hemispheres.* In America the lobes of the leaves are often rounded or angular, but not decidedly truncate; the leaves, petioles and stems either wholly or partially hairy, and the bracts, I think, rather shorter in proportion to the tube of the corolla than in the European plant. In this state it is the *C. repens* of Linnæus &c.,

* In North America, New Holland, New Zealand, Western Patagonia (Darwin), Java (Choisy).

and which I have gathered abundantly in Georgia, on the banks of the Savannah River, May 22, 1847, a little below the city, with both white and blush-coloured blossoms, as in the New England states and this island; but, excepting in the above particulars, themselves by no means constant, I find nothing to distinguish the transatlantic from the ordinary European form of *C. sepium*. My excellent friend Dr. Asa Gray, who so ably fills the botanical chair of Harvard University, ascribes larger flowers to the American variety of *C. sepium*; but though variable in size, the flowers, I think, fully equal with us those of any transatlantic specimens I have seen, being often three inches in diameter in our damp hedgerows, which the ample, pure white corollas copiously adorn from the middle of June till October, or even later. Smith and Wahlenberg profess never to have seen the capsules, which indeed are not very commonly produced. I have, however, gathered them in plenty in many places about Ryde, and elsewhere in this island, as well as near Hastings and at Hampstead. When growing on banks along the sea-shore, or trailing over the pebbly beach, the leaves are commonly somewhat fleshy, and such a variety I find in wet inland thickets occasionally in this island, on the eastern skirts of Blackpan Common. The flowers of *C. sepium*, unlike those of the last, do not close at night or during rain. I have once or twice noticed the corolla to be deeply 5-cleft in this island. A similar variety of *C. arvensis* is recorded by Ray and Sir J. Smith.

Convolvulus Soldanella. On sandy or shingly sea-beach, both in the Isle of Wight and on the mainland. At the lower end of Sandown Bay, towards Shanklin, but sparingly. In drift sand on St. Helens Spit, at its upper or northern extremity, in some abundance, the trailing stems sometimes above two feet in length and rather shy of flowering. In very great abundance on the sandy spit at Norton, opposite Yarmouth, towards its western end, copiously bedecking the ground with its large showy flowers, and seeding freely. All along the south shore of Hayling Island for three miles, sparingly at its east end, becoming more frequent towards its western point. Opposite Cumberland Fort, where it almost covers the sandy hillocks near the Passage House, rampant on the tufts of grass and low herbage, and with very large leaves, but apparently not flowering freely on any part of this extensive line. Sandy shore at Portsea; Mr. E. Lees in New Bot. Guide. The remark of Smith in Engl. Bot., that the flowers of this species expand only in fine weather, and in the early part of the day, does not accord with my own carefully repeated observations. I find, on the contrary, that neither wet nor the total

deprivation of light in close tin vessels have any tendency to produce collapse of the blossoms, which in their native soil continue expanded all day, and if not during the night, which they certainly do when taken up, at least till long after dark. Sir Wm. Hooker has remarked the flowers to be fragrant in Jersey.

Cuscuta europæa. Parasitic on various herbaceous plants, in hedges, &c., but very rare, at least in the Isle of Wight. On wild hops, nettles, and thistles (*Carduus arvensis*), in a hedge betwixt Kerne and Alverstun; Dr. T. Bell Salter, 1840 !!! I have not seen it there for some years past. On vetches in a field at Bouldner, near Thorley; Mr. Robert Gibbs, July, 1848 !!! Near Lake, Isle of Wight (which Lake?); Mr. J. Woods, jun., in Bot. Guide. Near Alton; Rev. G. E. Smith! Dr. Lindley ('Vegetable Kingdom') observes that dodders do not seem to occur much in the tropics. I found two or three species to be very common in Jamaica, and in the island of Grenada observed not only shrubs (*Rivina*, &c.), but trees of various kinds and orders (*Cerbera*, *Bignonia*, *Citrus*, &c), twenty or thirty feet high, smothered as it were under a gigantic species of *Cuscuta* (not a *Cassytha*), growing in vast abundance, depending from the branches like huge hanks of coloured yarn many feet in length, and hiding a great part of its victims from view in its treacherous snare.

—— *Epithymum*. On furze, thyme, ling, heath and other shrubby plants, but principally on the first of these; very common. On most of our larger heaths and commons in the Isle of Wight, and on the mainland, the low furze bushes may be seen bearing this plant like entangled skeins of red or yellow silk, often with a profusion that can hardly fail to arrest the attention of the most incurious, as on Ningwood Common, between Yarmouth and Shalfleet, Stapler's Heath, by Newport, &c. On *Galium saxatile* by the road-side over Bleak Down, to Newport. So abundant on the furze along the south coast of Hayling Island, 1848, as to fill the air with its unpleasant odour when a damp wind blew over it. On Shidfield Heath; Miss Hawkins. Hursley; Miss L. Legge.

†?—— *Trifolii*. In clover-fields, apparently of recent introduction, and happily as yet very rare in the Isle of Wight. Abundantly in a clover-field by Thorley Farm, 1842; Mr. R. Gibbs !!! In another field on the same farm, not far from Yarmouth, but on the opposite side of the river,—very sparingly, October 13, 1843; Mr. George Gibbs !!! Not, I believe, since remarked in either station. The simultaneous appearance of this dodder, a few years back, in various parts of England, from the ravages it made amongst clover,

caused a great sensation amongst agriculturists. Assuredly very nearly related to the last species; but the characters have been well pointed out by Mr. Babington, and with these my rather poor and imperfect specimens, gathered when nearly out of flower and half destroyed by the sheep, agree very exactly. The evil, like many others, proved greater in anticipated than in real magnitude, and now the clover dodder is seldom heard of or talked about, having either died out of the country, or through the operation of natural causes been restrained from becoming injuriously prevalent. Mr. Borrer, I believe, found this plant in Sussex more than forty years ago, by which we may conclude it to be no newly-arrived stranger amongst us, and that it would still have passed unnoticed but for the sudden inordinate increase, which gave it an unwelcome notoriety. The acotyledonous and spiral embryo, scale-like appendages to the corolla, leafless and parasitic habit, are surely sufficient characters on which to found the natural order of Cuscutaceæ adopted by Lindley and other eminent botanists.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
April, 1849.

(To be continued).

BOTANICAL SOCIETY OF LONDON.

Friday, May 4, 1849. — John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

‘*Flora Hertfordiensis*,’ by the Rev. R. H. Webb and the Rev. W. H. Coleman; presented by the authors. ‘*Transactions of the Berwickshire Naturalists’ Club*,’ presented by Mr. R. Embleton. ‘*Journal and Transactions of the Pharmaceutical Society*,’ presented by the Society. ‘*Proceedings of the American Philosophical Society*,’ presented by the Society. ‘*Agricultural Magazine*,’ presented by the editor.

British plants from Mr. R. Embleton and Mr. T. Kirk.

Mr. Thomas Moore communicated some remarks on a form of the sweet violet (*Viola odorata*), with mottled pale lilac flowers, found in the neighbourhood of Guildford, Surrey. This form was stated to be

larger and more hairy than the common sweet violets (blue) of the same neighbourhood, and showed, besides, the constant difference of having its sepals fringed with short hairs or cilia. In respect to this latter character, the author stated that in all the white sweet violets he had had opportunities of examining, he had found similarly ciliated sepals; whilst in the blue sweet violets, and in another form with flowers of a reddish purple hue, he had as uniformly found the sepals to be quite entire. From these observations, the author suggested that the white sweet violet, usually regarded as a mere variation of colour, might perhaps prove a *bonâ fide* variety, assuming the blue sweet violet with entire sepals to be the typical form of *Viola odorata*. In this view of the relations of the native sweet violets, the white and the lilac flowered, fringed-sepalled plants would be considered as forms of a variety to which the name *ciliata* would be appropriate; whilst the blue, entire-sepalled plant would be regarded as the type of the species. It was mentioned that the white sweet violet had been set up by some botanists as a species distinct from *V. odorata*. Specimens of both forms were exhibited.—*G. E. D.*

Notice of 'A Paper on the Study of Natural History. By W. D. KING. Read at the Mechanics' Institution at Sudbury, March 16, 1849. Sudbury: Wright. 1849.'

WE never recollect meeting with a paper of this kind that so completely fulfilled the conditions required in an address to the Members of a Mechanics' Institution. To assume that the members of such an institution are stolidly ignorant of the most commonplace information; to address them as persons of weak intellect; to withhold all that is useful, and parade before them only that which is puerile, showy, glaring or wonderful: these are errors of every-day occurrence. On the other hand, how often do we not see hired lecturers from London touring the provinces, after cramming themselves with hard names and high-sounding paragraphs, neither of which they comprehend, but which they think are sure to enhance their own reputation, when retailed among those who understand still less! Mr. King's address is perfectly free from both errors: it is extremely simple, clear and intelligible, yet full of information. The style is that of a true philosopher; of one who is so familiar with knowledge that he feels its possession a matter of course: he communicates his infor-

mation as he would read a chapter in the Bible. The value of the matter induces no kind of self-esteem.

We have often thought how much good might be done by circulating addresses like this throughout the length and breadth of the land. Every Mechanics' Institution in particular should have a copy, to serve as a model for members about to address their neighbours and friends.

We select for quotation a botanical passage, to show how agreeable and interesting the most common phenomena become when observed by appreciating eyes, and recorded by an unassuming and graphic describer.

"In spring our woods and groves are gay with the lovely blue hyacinth, and with the varied shades of pink and white of the wild anemone; their colours contrasting finely with the pale yellow of the primrose, and the brilliant golden stars of the *Ficaria*. In few districts, perhaps, do the road-sides and field-hedges offer to the eye of the traveller a greater variety than our own. Violets, blue and white, and of various intermediate shades; the periwinkle, that lovely harbinger of spring; the wild endive, with its scraggy branches, and its large starry flowers of almost cærulean blue; the Canterbury bell, the red and white *Lychnis*, the everlasting pea, the liquorice vetch, the curious leafless yellow vetchling, the borage, that favourite of the honey bee, with its bright flowers, as singular in form as beautiful in colour; the white, and red, and yellow nettles; the delicate, pendant blue flowers of the harebell, waving with the slightest breeze; and the clear white stars of the stitchwort. Nor must we forget a plant which ornaments our banks, and greatly attracts the admiration of strangers—the viper's bugloss. The more minute plants are also well worth notice. In earliest spring, and frequently from amidst the snow, the little *Draba verna* studs our banks, and opens its tiny white flowers. It varies greatly in size in different situations; from five or six inches in height to so dwarf-like a form, that its leaves, flower-stalk, and flowers would not together exceed perhaps one-third or one-half of an inch; and the whole plant, root and all, might rest upon a three-penny piece without overspreading its margin. There is also that curious little plant, the *Adoxa moschatellina*, with its slender stalk and its crown of five round flowers, placed close together so as to form a hollow cube, reminding one of the locking of the warriors' shields of old. Our hedges are garlanded with the wild vine with its graceful tendrils, the large white bells of the climbing *Convolvulus*, and with the wild *Clematis*; also known by its pretty names of 'Vir-

gin's bower' and 'Traveller's joy.' It is the seed of the latter plant, with its silky bunches (so well known to children by the name of 'Old man's beard'), which so conspicuously decorates our hedges in the winter; together with the scarlet berries of the holly, and the bright pink of those of the Euonymus or spindle tree, with their curious tripartite markings. Our chalky banks are richly hung with the fragrant wild thyme, and studded with the frail yellow blossoms of the cistus, and the crimson tassels of the burnet. Our fields abound with the lovely scarlet pheasant's eye, the watchful pimpernel, closing her flowers before rain and when the sun hides his face, the flaunting poppy, the cheerful blue-bottle, and the henbit (*Lamium amplexicaule*), curious from the fact that the flowers it bears in spring are very dissimilar from its summer and autumn blossoms. The buds of this flower are of a beautiful carmine. The pure white blossoms and red stems of the Saxifraga granulata ornament our dry pastures, and the rarer species of golden saxifrage is found in a brook in one of the Cornard lanes. A plant of it is now in bloom amongst some rock-work in my garden. The lily of the valley also occurs in our woods. Its bells of rich perfume are embosomed in its broad, dark green leaf, which contrasts finely with their snowy whiteness. From our youth upwards, what pleasing associations have we connected with the name of this sweet flower. It seems the embodiment of retiring loveliness, and of gentle and modest worth.

"This neighbourhood is rather rich in those beautiful orchises peculiar to a chalky soil. We have the bee orchis, that treasure to a young botanist! the butterfly orchis, and the green-veined meadow one. The fly orchis, which bears a singularly close resemblance to the insect after which it is named, is also said to occur here. The pyramidal orchis is sometimes found on the dry banks, and the broad-leaved in the damp meadows near the town. We have also, I believe, as a rarity, the rich clove-scented orchis in pastures near Bulmer.

"A relation of mine, anxious for a specimen of the first-mentioned of these curious flowers, requested a friend of his, *not* a botanist, to procure him a bee orchis from a spot where it was known to grow. This gentleman searched well and long, and at last thought that beyond all question he had found one, and took out his knife to secure the prize; when lo! *away flew the bee*. Of course he was not previously acquainted with the flower, or he would hardly have made such a mistake. Still, at a little distance the lower lip of the flower *does* resemble the body of a bee engaged in rifling the interior of the blossom, where its head may be supposed to be concealed.

"Our meadows present us also with the rare snake-weed (*Polygonum Bistorta*), the elegant meadow Lychnis, the yellow rattle, and the delicate cuckoo-flower; 'so called,' as worthy old Gerard quaintly expresses it, 'because it flowres when the cuckowe doth begin to sing her pleasant notes without stammeringe.' The margins of our streams exhibit beautiful specimens of the water-violet, the rare Cardamine amara, the arrow-head, the flowering rush, the yellow Iris, and that universal favourite, the exquisite little Forget-me-not. I well remember, in my earlier days of plant-collecting, the delight I felt in obtaining, when from home, a specimen of the elegant flowering rush, which I then thought a prize indeed; little imagining at the time, that our streams offered an abundant supply. The yellow water-lily abounds, and the white is not uncommon; and who has seen the magnificent flowers and broad floating leaves of the white water-lily, and not been struck with its almost oriental splendour? Where, amidst the most treasured beauties of the conservatory, shall we find so superb a flower?

"We have on Cornard Mere a good locality for bog plants. Here grow some of our greatest favourites; the elegant grass of Parnassus, the lovely fringed flowers of the Menyanthes or buckbean, the sweet little bog pimpernel, and many other plants not otherwise common in this district. Probably the sundew might also be found there, and I should be much gratified to hear of the discovery, for it is a very curious and interesting plant. Its small, round, reddish leaves are covered with glandular hairs, and with globules of a honey-like fluid; and in the hot sun they appear to possess an irritability resembling that of the sensitive plant, and the Venus's fly-trap of the tropics; for when flies or other small insects, attracted by the sweets, alight upon them, they gradually curl up and enclose them in their folds. What purpose in the economy of nature is thus fulfilled, it is difficult for us to determine; but we may rest assured that some wise and useful end is answered by this curious phenomenon. It is found on Bergholt Heath, near Colchester.

"We must not stay to enter much into a description of the ferns, though scarcely yielding in elegance and interest to any division of the vegetable world. The lady fern (*Athyrium filix-femina*) is perhaps the most beautiful. The common brake (*Pteris aquilina*), a section of whose stem, near the root, has been said to represent 'King Charles in the oak,' is by no means devoid of elegance. The prickly fern (*Polystichum aculeatum*), the male fern (*Lastrea filix-mas*), and the polypody (*Polypodium vulgare*) are abundant in our hedges; the

latter, with the underside of its fronds studded with drops of golden fructification, adorning the old pollard oaks and willows. The hart's tongue (*Scolopendrium vulgare*) occurs in some spots in beautiful profusion, and its fructification is also exceedingly curious. The hard fern (*Blechnum boreale*) is very abundant in some localities. It covers acres of ground in Cornard and Assington woods. That beautiful fern the spleenwort (*Asplenium Trichomanes*) is found in two or three localities near us; and whether growing on a wall where perhaps the length of its fronds scarcely exceeds half an inch, or on a shady bank where they attain a length of eight or nine inches, it is one of the prettiest of our native species. The black spleenwort (*A. Adiantum-nigrum*) is much more frequent, and is plentiful near Bulmer. The rue-leaved spleenwort (*A. Ruta-muraria*) we have only observed in one spot—the wall of a village churchyard about three miles from us.*

“Not the *flowers* only, but even the *leaves* of plants afford much interest to the attentive observer. They exhibit very great variety in form, character, and colour. Amongst our British plants no fewer than sixty-nine distinct forms of leaf are recognized; as round, oval, pear-shaped, heart-shaped, strap-shaped, spear-shaped, kidney-shaped, crescent-shaped, hand-shaped, arrow-shaped, wedge-shaped, lyre-shaped, winged, doubly winged, feathered, triply feathered, &c., &c. And as to character, some hang on long footstalks, others embrace the stem; some are rough, others smooth, or shining, downy, hairy, woolly, prickly, or thorny; beset with minute hooks, or rough with poisonous spines: and in colour there is as wide a range, from the lightest shades of green and yellow, to the richest tints of the darkest crimson. The seed leaves of plants usually vary in shape from their general foliage; and in many species, the lower leaves and the stem leaves are of very different form.” K.

“* The scaly spleenwort (*Ceterach officinarum*) is not, I believe, a native of this part of England. It flourishes on some shaded rockwork in our garden, and we have raised young plants from the seed both of this species and of the rarer sea fern (*Asplenium marinum*).

“There are 1400 species of ferns known to naturalists, of which about 40 species are found in the British Isles.”

Reply to Mr. C. C. Babington's Defence, in the Case of the Irish Saxifrages. By HEWETT C. WATSON, Esq.

LONG usage has pointed out the fitting course to be taken in argumentative contests, whatever their object or kind; namely, that A, who states the case, shall have the privilege of replying to any opposition or defence by B, and that the matter shall then be left to the verdict or judgment of third parties. In accordance with this customary privilege, the editor of the 'Phytologist' properly allowed Mr. Backhouse (who had constituted himself a volunteer-accuser of the reviewer "C.") to reply to the defence made by "C." I claim the same customary privilege in reference to Mr. C. C. Babington's defence.

First. It is idle verbiage in Mr. Babington to contend for the *sufficiency* of his "series of specimens;" since the series only sufficed to lead him into error. That which led Mr. Andrews to the truth, and the whole truth, was the really sufficient series.

Secondly. I received the letter of April 8th, as mentioned by Mr. Babington. What then? The circumstance of Mr. Taylor having forgotten that he received a certain paper, stated to have been delivered to him, does not disprove the delivery, and much less can it negative my statement of having been "*informed*" that such a delivery was made at Cambridge. Nobody said that the paper reached Red Lion Court. The most reasonable guess suggests, that it would be left in Cambridge, where the botanical editor of the *Annals* was a resident.

For anything which Mr. Babington has now penned in defence or exculpation, the "Case" remains precisely as I stated it in the 'Phytologist' for May last. Moreover, as it was there explained, the matter was not rendered a mere quibbling on or of words. It was strictly one of botanical information and botanical claims;—information concerning facts which corrected certain published errors in Botany, and claims for such facts to be fully and honestly placed before those readers of the *Annals* who had been misinformed.

HEWETT C. WATSON.

Thames Ditton, June 4, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 564).

Cynoglossum officinale. In dry waste and pasture ground, by road-sides, and amongst ruins, rubbish, &c., in many parts of the Isle of Wight, but not very common. On Ryde Dover occasionally, probably now extirpated by building. On the shore beyond Sea View. Very common in some parts of the Undercliff, as at Ventnor, Bonchurch, St. Lawrence. Near Dogkennel and elsewhere, occasionally. Apparently frequent over the county. Near Southampton. Abundant at Lyss, near Petersfield. Plentiful on Langwood Warren, near Winton. In Hackwood and Hurstbourne Priors Parks. Plentiful at Oakhanger, near Selborne.

Var. β . Leaves subglabrous, more or less shining, nearly scentless. *C. officinale*, var. *C. subglabrum*, Merat. Nouv. Fl. des Env. de Par. p. 73. *C. officinale*, β . Bert. Fl. Ital. ii. p. 298? (in part at least, excluding references to *C. sylvaticum* of Smith and others). On hedgebanks and more shady places than the last. At Bank End, by St. Lawrence; and at Eastend, Bonchurch. A slight variety merely of the common hounds'tongue, and in some specimens hardly to be distinguished from the usual form by the characters just mentioned. The fœtor of the plant resides probably in the down of the leaves and stem; it is not surprising therefore that the smoother variety should be nearly scentless. The true *C. sylvaticum* of Smith, *C. montanum*, *Lam.*, is a very different thing from the above variety, and has been indicated to me as found at Wheely Down, near West Meon, by the Rev. E. M. Sladen, but farther inquiry seems advisable before admitting it into the flora of this county, though a plant likely enough to grow within our limits. The rare *Asperugo procumbens* may possibly be found hereafter to inhabit this county, as it is alleged to grow in the adjoining ones of Sussex and Dorset, on the authority of the 'Botanist's Guide.'

† *Borago officinalis.* In dry waste places, amongst rubbish, by road-sides, on hedgebanks, and in dry pastures; naturalized. Not unfrequent in the Isle of Wight, in hedges adjacent to cottage gardens. At Sandown, Arreton, Yarmouth, &c. On rough pasture ground below Little Buddle farm, by Niton, 1843. In 1837 I ob-

served part of a clover-field at Bonchurch quite blue with it. In similar places on the mainland of Hants, and equally frequent. Said to be originally from the east, a rather indefinite term, but Bertoloni appears to regard it as indigenous to the countries around the Mediterranean, and truly wild in Italy.

†*Anchusa sempervirens*. In waste places, amongst ruins, by roadsides, and on shady hedgebanks in lanes: a very doubtful native of this county and island, nor have I ever seen it myself in any situation within our limits where it could with propriety be held indigenous. At Niton; Mr. Curtis, who thought it wild there, and has figured it in his superb work on British Entomology, from a specimen gathered at that place. Naturalized in the garden of Montpellier House, Ventnor. I have gathered it truly wild on weedy banks in shady lanes near Plymouth, and in the Channel Islands. All the eastern stations I have seen, as near Norwich, &c., look to me problematical.

Lycopsis arvensis. On dry banks, waste ground, and amongst corn in light, sandy soils. Not very general in the Isle of Wight, and observed principally on the greensand in East Medina. Seen frequently about Lake, Sandown, Shanklin, and in the sandy fields above Sandown Bay, towards the Culvers. Very common in sandy fields about Newchurch and Arreton. Frequent, I presume, over this as most other English counties, in similar soils, though I have no special memoranda of a plant so generally distributed throughout the kingdom to quote for the mainland of Hants.

Symphytum officinale. By weedy river and ditch-sides, and along moist hedges in watery lanes, &c.; frequent in the Isle of Wight and county generally. Abundant along the marsh ditches in Sandown Level, both with white and purple flowers. By Bow Bridge. At Shorwell and Luccombe. Frequent on the moors betwixt Bridge and Budbridge, and various other parts of the island. Abundant about Winchester, where, as well as in the Isle of Wight, the var. β . *S. patens* of Sibthorpe is almost equally common. A lovely variety, with the flowers of the deepest purple rose-colour, I gathered in a wet place below St. Cross, near Winton, May 28; and the same has been found at Sandown, in this island, by Mr. Curtis, and figured by him in Brit. Entom. iv. tab. 155. Mr. Curtis noticed at the same time "specimens with flowers of the richest purple, and others entirely green." The scales in the tube of the corolla are curiously fringed with prismatic teeth or points, resembling in form and transparency the purest icicles. *S. tuberosum* may possibly be found in this

county, as it is the prevailing species in some parts of the north of England, and in Scotland, whilst in France their distribution is exactly reversed, *S. officinale* being the ordinary Comfrey of the northern departments, and *S. tuberosum* the more common species in the southern and Mediterranean provinces. About Montpellier the latter abounds, where I do not remember ever to have remarked the former.

Echium vulgare. In dry sandy or chalky pastures, waste ground, the borders of fields, by road-sides, and on old walls, not uncommon, but less frequent in the Isle of Wight than on the mainland of Hants. On Carisbrook Castle walls. Sandy fields betwixt Alverstton and Bardwood, and about Queen Bower, frequent. Sandy fields behind Colwell Heath, one of which, June 17, 1841, was absolutely blue with it, and where at the same time I gathered a variety with flowers of a permanent and beautiful rose-colour. About Alum Bay, and in numberless other parts of the island. Common about Winchester, Andover, &c. I do not recollect having found this plant with white flowers in our county, though not an unusual variety in England, but I have gathered a remarkable form of it in Sussex, about Old Shoreham, well known to Mr. Borrer, which, in the deep purple of its blossoms, diffuse growth, and broadly elliptical stem-leaves, makes an approach to *E. violaceum*, but wants the oblong root-leaves of that plant, not to mention other differences between them. I think I once found the same form near Exeter: it seems deserving of further attention. In the Isle of Wight the Viper's bugloss is scarcely obnoxious to the farmer, and seldom intrudes upon his grain crops, but in the corn-fields of Cambridgeshire the wheat is much infested by its presence, and which, with the poppy and larkspur, it often helps to make "unhospitably gay." My worthy friend Dr. Darlington, himself a practical farmer, in whom the utilitarian and the lover of nature are happily blended, denounces the Viper's bugloss as a "vile foreign weed," and prudently warns his agricultural brethren of Pennsylvania against allowing it to gain a footing on their farms, since it has already evinced itself a troublesome intruder in certain parts of the United States.* When we consider what a number of European plants have earned the rights of citizenship in that country, by complete incorporation with the aboriginal flora, and how few America has given us in return for our not always welcome immigrants, the comparative immunity of its territory, from the host of injurious

* Fl. Cest. p. 119, and 'Agricultural Botany,' p. 123.

weeds that encumber the corn and other tillage lands of one quarter of the globe, and severally test the skill and vigilance of the European husbandman in their eradication or subjection, naturally excites surprise and inquiry into its probable cause. I was forcibly struck with the relative paucity of corn-field plants, both as regards species and even individuals, in that country, compared with their prevalence and variety at home; a difference certainly not attributable to better farming, but to the fact, I think, that the number of social plants, or those endowed with great power of occupancy, is much larger on this than on the other side of the Atlantic, which is quite in accordance with an observation made long since by Humboldt, that in approaching the equator, whilst the amount of species increases, the individuals of each kind diminish in number, grow farther apart, or in other words, become less social or gregarious.

Pulmonaria angustifolia. In woods, thickets and copses, on hedge-banks and along the borders of fields, exclusively on the tertiary or freshwater formation, and particularly on damp, or even wet clay soils; abundantly over the greater part of the Isle of Wight north of the central chalk range, especially in the eastern part of East Medina, and that portion of the western hundred nearest to the latter, occupying an area of several thousand acres. Plentiful over the whole of the woody country south and west of Ryde, to the Medina and the foot of the chalk hills, on and beyond which, on the greensand, gault, &c., not a specimen is to be seen. In Quarr Copse, Firestone Copse, Whitefield and Combley Woods, Briddlesford and Chillingwood Copses, &c., in great plenty. Rarer in West Medina, in consequence of the limited area of its favourite formation in that hundred, but plentiful in and about Parkhurst Forest, and frequent in damp thickets and copses along the river between Newport and Cowes. Var. β . Leaves very narrowly lanceolate, Ger. em. p. 808, fig. 3 (bona). Not uncommon. Var. γ . Flowers white. Rare. In a little copse near the Medina, by New Fairlee, near Newport; Mr. George Kirkpatrick!!! (The leaves in this variety are extremely narrow).

On the mainland of Hants the *Pulmonaria* appears confined to the hundred of the New Forest, where the geological features of the country accord with those of the opposite shores of the Isle of Wight. How far it extends over this district I am at present unable to say, but I find it plentiful about Lymington and Boldre, and recorded as growing at Holbury in the New Forest, throughout which it is probably distributed. I have never seen it or heard of its being found in any other than the extreme south-western part of the county, which dif-

fers considerably in botanical character from the remaining districts, as before remarked. The "blue cowslip," as it is here familiarly styled, is one of the earliest of our spring flowers, beginning to blossom with us in March, and continuing in that state till June, but is in highest perfection about April or beginning of May. The corolla, which is reddish in the bud, first becomes violet, and lastly ultramarine blue, of intense brilliancy, but fading ere long into dull blue or purple. Host, Reichenbach and others have unjustifiably made many species out of our *P. angustifolia*, dependent on the insertion of the stamens, which present two modifications of position. 1st, when the style is elongated so as to exceed the calyx, the filaments spring from the middle of the tube, and are then so shortened as to make the anthers appear nearly sessile; 2ndly, in such flowers as have the style shorter than the calyx, the filaments are more than doubled in length, the anthers then occupy the top of the tube, are no longer sessile, and have between them five small tufts of erect, pellucid hairs. The same two-fold arrangement of the stamens and difference in the length of the style, is common in *Primula* and other genera of its natural order, between which (*Primulacæ*) and the present (*Boraginacæ*) there are many strong points of affinity. In one or other of these cases, in *Primulacæ*, at least, the anthers are abortive, and it is probably so in *Pulmonaria*, as I find the nuts in general very sparingly matured, they usually falling away before ripening, and commonly but one or two of the four are perfected in the same flower under any circumstances. The length of the stamens relatively to that of the tube has no connexion with the dimensions of the latter. When the stamens exceed the tube, the filaments are very apparent, but when the anthers are situated within and below the mouth of the tube, they seem, from the extreme shortness of the filaments, to be quite sessile; in that case the little fascicles of white hairs occupy their usual place at the upper margin of the throat. These connivent tufts exhibit the rudiments of a valvular structure at their base, and doubtless serve the same purpose as the more perfect valves that close the mouth of the tube in other *Boraginacæ*, the office of which can scarcely be to protect the anthers from injury, since these are as often above the former as below them.*

As before remarked, many false species, and even a genus (*Bes-sera*), have been manufactured out of *P. angustifolia*. Such are *P.*

* The plaits at the orifice of the tube in *Primula*, and the scales which converge over that of *Samolus*, are analogous to these organs in *Boraginacæ*.

mollis (Curt. Bot. Mag. L. tab. 2422, certainly only a variety, and that a very slight one. : *P. azurea*, of Besser's 'Enumeratio Plantarum Volkyniæ,' &c., and of the 'Primitiæ Floræ Gallicæ' (Bessera *azurea*, *Schult.*), it would be no difficult undertaking to match exactly from the Hampshire woods. Bertoloni in *Fl. Italica* has very judiciously reduced these and some other supposed species to their true station as varieties of *P. angustifolia*, which presents infinite gradations in the breadth and narrowness of the leaves, size and intensity of colour in the flowers, and in the pale nebulous spots on the foliage, which are sometimes very large, confluent, and cover nearly the entire disk of the leaf, at other times small, few and distinct, more rarely wholly absent. The shortly pedicellate flowers in a terminal leafy cluster of about three primary divisions, make the inflorescence in its early stage appear capitate, but in more advanced growth it becomes spreading and subpaniculate, the clusters a little recurved. The root-leaves increase very greatly in size after the flowers are past, and are conspicuous the winter through in the damp, clayey woods, but give place to fresh ones in the spring.

†*Pulmonaria virginica*. In the ruins of an old castle near Netley Abbey, far from any house, and apparently wild; Rev. Norton Nicholls in Bot. Guide! In a wood through which the road passes, about two miles and a half from Newport, Isle of Wight, to Ryde, as common as *Scilla nutans* in our woods; Mr. Griffith in Bot. Guide. From the former of these stations I have seen specimens in the Banksian herbarium, now in the British Museum, but I feel persuaded the second is an error, and that it may be easily traced to the authors of the 'Botanist's Guide' inadvertently subjoining the then quite recent detection of *P. angustifolia* in this island by Mr. Griffith in 1804, to their announcement of the American species as having been found near Southampton. I have nevertheless carefully searched the woods betwixt Newport and Ryde on the chance, small as it was, of finding that foreign species naturalized therein, seeing it did once occur in the county, although in a very suspicious locality. The wood in question I imagine to be Combley Great Wood, as through that and Firestone Copse the old road between Newport and Ryde appears not many years since to have passed. On the present line there is no wood through which it can run within the alleged distance of two miles and a half from Newport. In the present case there seems to be ground for acquitting Mr. Griffith of the commission of a blunder, although in other instances he incurs the imputation of being a careless or inaccurate observer.

?*Pulmonaria officinalis*. In similar places with the last species, but far more rare, if, indeed, it be distinct therefrom; nor does it seem to have been gathered in the subjoined localities subsequently to the date of its first discovery in that station, and which itself rests on very uncertain authority. Common in Exbury Wood; Mr. Rudge in Bot. Guide: but there are strong grounds for suspecting that *P. angustifolia* was the plant intended both in this and the remaining stations quoted in that work,* and I believe Mr. Borrer has searched at Exbury in vain for specimens. The figure in E. B., t. 118, depicts a form of *P. angustifolia* very frequent in the county, with broad, ovate, upper stem-leaves; that given in tab. 1628 of the same work as the true *angustifolia*, is likewise a very common form here, as are also figs. 2 and 3 of Gerard's Em., the latter representing the extreme narrow-leaved state of the plant, such as I have often gathered in this island, and to which my examples with white flowers likewise belong. That there is a *Pulmonaria* found in various parts of Europe, and very common in English gardens, if not wild in some counties, having the root-leaves broadly cordate-ovate, and which is the *P. officinalis* of Linnæus and others, cannot be doubted; but excepting in the greater breadth of the lower leaves I do not know in what it differs from *P. angustifolia*, which last, in some of its broader forms, approaches the other pretty closely. I confess, however, to having never seen a complete amalgamation of both species by an unbroken series of connecting links, or such examples as there would be any difficulty in referring to one or the other; and since the geographical distribution of the two plants is not quite the same, and the continental botanists, who enjoy better opportunities of studying them in a native state than we do, are generally agreed in keeping them distinct, it is perhaps advisable still so to consider them in the absence of positive evidence to the contrary.

Lithospermum officinale. In woods, copses, on bushy banks and in dry stony or waste places, corn-fields, &c., but not very common, at least in the Isle of Wight. In Quarr Copse, by Binstead, in the pits or hollows (old stone workings), not unfrequent. At Nettlestone

* That of a wood by Holbury House, in the New Forest, given as if on the authority of Ray, is in fact due to John Goodyer in Gerard Em., and from reference to the figure, is plainly *P. angustifolia*. Merrett's station of Kinswood, or rather Kingswood, by Mr. Loggins (Pinax, p. 99), though referring to Gerard's figure of *P. officinalis* (Herball, p. 808, p. maculosa), is in all likelihood our *angustifolia*, as these plants were then not properly distinguished, and Merrett, who was himself scarcely more than a compiler, does not appear to have seen specimens.

Point, and along the shore between it and the Priory. Frequent in Bloodstone and Eaglehead Copses near Ashe, and elsewhere in the island. Near Fontley Mill; Mr. W. L. Notcutt. Probably frequent throughout the county, but I have not paid attention to the point as yet.

Lithospermum arvense. In corn-fields and waste ground, very common. Often much too abundant amongst corn at Bembridge, Cowes, &c., and I presume of equal frequency throughout the county.

OBS.—*L. purpureo-cæruleum*, distinguished by its large tubular flowers of the most vivid azure, and narrow, very acute leaves, should be looked for in chalky woods and thickets.

Myosotis palustris. In clear pools and ditches, on the banks of streams, and in marshy places; a frequent plant in mainland Hants, but singularly uncommon in the Isle of Wight. In a boggy meadow by the stream side a little above Calbourne village, or towards Calbourne Lodge. Margin of a small pool in the Brick-kiln Butt, facing Wackland farm house; the late Mr. Robert Loe, Sept., 1843 !!! In moist ditches, not uncommon; Mr. W. D. Snooke: but I fancy the next species to be the one which Mr. S. had in view, and which is often taken for the true forget-me-not. Profusely in various places along the stream from Selborne church to Oakhanger and Short Heath, enamelling the margin of the limpid brook with its lovely sky-blue flowers and herbage of the liveliest green; very fully in flower, September 17th, 1848. About Bishopstoke. Wet place by the road-side between Boldre Bridge and Passford farm, near Lymington. Wallington, Maindell, &c.; Mr. W. L. Notcutt; and in many other places.

—— *repens*. In similar places with the last, as likewise in moist woods, and far the more common of the two, which are often confounded together. Frequent in the Isle of Wight, as in the marsh ditches about the Wilderness, abundantly, and elsewhere. A very common species in the county generally.

—— *cæspitosa*. In ditches and pools, but not very frequent, at least in the Isle of Wight. In Sandown marsh ditches, not uncommonly. In a small pool in a field near Coppid Hall, by Havenstreet. In one of the cuts or drains at the entrance of the marsh at Easton (Freshwater Gate), which was quite filled with it July 18th, 1843. Profusely abundant in a pool formed by the stream a little above Mottiston Mill. Ditches in the meadows at the bottom of Brading marshes; Mr. Wm. Wilson Saunders. I have no mainland station at present to record for this species, but I can scarcely suppose it to

be less frequent there than in the island. Besides the very good technical characters, this most distinct species is marked by its pale green, watery hue, its smooth, shining, translucent aspect, and extremely cæspitose mode of growth, its matted roots and lax interwoven stems, forming tufts of great magnitude and weight in the water of the ditch or pond, which it sometimes fills up entirely.

Myosotis sylvatica. In woods and shady places; very rare? At Lyss, near Petersfield; Rev. G. E. Smith! The only example of this beautiful species I have seen from the county, which I owe to the kindness of its discoverer, is remarkably pubescent all over. It will probably be found in other parts of Hants, but it is a much more frequent plant in the north than in the south of England.

—— *arvensis*. Common almost everywhere in open fields, fallows, waste ground, on hedge-banks, and in shady places, groves, &c.

—— *collina*. On wall tops, banks and waste ground in dry, sandy soil; very common during spring and early summer in the Isle of Wight, and doubtless over the entire county as well.

—— *versicolor*. In like places with the last, as also in moist meadows and pastures; very commonly.

Solanum nigrum. In waste ground, about houses and farm yards, on dunghills, rubbish-heaps, in neglected gardens, and in sandy places near the sea; very frequent in the Isle of Wight, and I believe over the whole county. At Ryde, on the Dover, &c., frequent. Plentiful, and very large in some sandy or gravelly pits on the spit below St. Helen's, where, as amongst the sand-hills and on the flat beach of the south shore of Hayling Island, it grows in its most truly natural and wild state. Common about farm houses and in weedy gardens in most parts of the island; at Sandown, Bonchurch, Ventnor, Cowes, Arreton, Godshill, St. Helen's, &c. Portchester; Fareham; Mr. W. L. Notcutt. I have remarked it in various places on the mainland, but have neglected making notes of a plant so generally diffused over the south of England as this. Several varieties, some of them perhaps species, occur on the continent of Europe, and which will probably be found to inhabit Britain. Of these the most remarkable and distinct is that with berries of an orange red, *S. miniatum* of some authors, and a variety with the fruit of a yellowish green when mature, is found in Sussex and other parts of England, and will probably be discovered in Hants. I have only found the common black-berried form here as yet, which, with some insignificant differences in aspect, is widely dispersed over the temperate and warmer parts of the globe. The common American form, *S. virginianum*, differs in no

respect from the ordinary European state of the species, but I have gathered in the West Indies (Trinidad) a variety with a more slender habit and smaller flowers and berries than in the English plant, which is much used by the negroes as an ingredient in their vegetable soup called callaloo, and a similar use is made of *S. nigrum* by the blacks in Africa and in the Mauritius. In this county the garden nightshade passes for an active and poisonous plant, and at one time obtained some repute in medicine. To judge from its appearance and smell, it is the last thing one would choose to make soup of, though in the process of stewing it may become as innocent, and I dare say quite as palatable, as "nettle brose," which the author of the useful and agreeable 'Flora of Forfarshire' extols as delicious. The flowers of *S. nigrum*, gathered in warm, close weather, occasionally exhale an odour of musk as powerfully as do the blossoms of *Mimulus moschatus*, as I have myself remarked, but the smell is very transient, ceasing in a few moments after it becomes perceptible.

WM. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,
May, 1849.

[To be continued.]

On the Wiltshire locality for Lysimachia thyrsiflora.

By T. B. FLOWER, Esq., F.L.S.

It is only within a very recent period that the attention of botanists has been more especially directed to the geographical distribution of British plants. And since the publication of Mr. Watson's valuable 'Cybele Britannica,' together with the many excellent local floras and interesting contributions to the pages of the 'Phytologist,' much valuable information has been obtained, both as regards the distribution and range of species. And although much care has been taken of late years to avoid the propagation of error, through the medium of these sources, yet occasionally it cannot be prevented; and of which the following will afford a striking illustration. Having had, for some time past, considerable doubts as to whether *Lysimachia thyrsiflora* could be considered truly indigenous in Wiltshire, there is now, I believe, every reason for supposing, from information I have been able to collect, that this rare plant has been introduced into the county, by the late Mr. Sole, of Bath. Mr. Babington, in his 'Flora Bathoniensis,' gives the following station for it:—"In a marsh to the

right of the footpath from Wraxhall to the 'Horse and Jockey.' The late Mr. Jelly, in his 'Flora Bathonica,' which, from unforeseen circumstances, was never published, gives the locality in these words: "Sides of the Avon going to Tiverton."

Sole, in his 'Flora Bathonica,' written in the year 1782, with an intention of publishing it, but which his death prevented, writes the following:—"I have not yet had the good luck to find this plant, but having had it given me, I have planted it in a low place by the side of the Avon, 100 paces below Mr. Brett's timber-yard—where it flourishes very well." This I make no doubt is the same station alluded to by Jelly, his Flora having been written some years after Mr. Sole's death, and therefore he could not have known of its having been planted by Sole in the locality mentioned. The plant has not been found in this station for some years. With regard to the Wraxhall station, I have more than once been told, by persons who were well acquainted with Mr. Sole, that he was frequently in the habit of bringing plants into this locality, with a view of introducing them into the neighbourhood of Bath: therefore I think we may fairly presume that the *Lysimachia* was planted here also. And what is rather singular, it has now disappeared from this locality; not a single specimen, as far as I can learn, having been found since 1841. These statements, I think, very clearly show that the plant has been introduced into the neighbourhood of Bath, and can have no further claims to be considered indigenous; and that we should not be too hasty in deeming an introduced plant truly wild.

T. B. FLOWER.

Secund, near Melksham, June 14, 1849.

Notice of 'A Manual of Botany; being an Introduction to the Study of the Structure, Physiology, and Classification of Plants.' By JOHN HUTTON BALFOUR, M.D., &c., Professor of Medicine and Botany in the University of Edinburgh.

It would be difficult to point out any instance of more judicious appointment to a Botanical Chair, than was made in the choice of Dr. Balfour to perform the duties of that office successively in our two principal northern universities. In each instance a competition occurred which excited at the time a lively interest in botanical circles. It was a struggle between special qualifications for the responsible

office of academical instructor on the one side, and on the other side, established name and fame in the technical department of botany. Undoubtedly a very high compliment was paid to Dr. Balfour in giving him the preference over Dr. Walker Arnott, who had acquired for himself a forward position among systematic botanists, and also over Dr. J. D. Hooker, whose paternal name there were strong grounds for believing he would worthily maintain. The compliment of such a preference, we repeat, was a high one, by the confidence thus shown in the sufficiency of Dr. Balfour's qualifications; and from all we have since heard of Professor Balfour, as botanical instructor, the compliment was not more high than it was just and merited. We can fortunately express such an opinion now without in any degree disparaging the scientific merits of the unsuccessful competitors, whose claims to botanical distinction must rest on quite different grounds, and on grounds which are not contested with them by the same competitor.

From his present position in an university of such well-established reputation for scientific lectures, and from the circumstances under which he was appointed to the chairs both of Gläsgow and Edinburgh, a 'Manual of Botany' from the pen of Professor Balfour will naturally be looked at with some curiosity and no little interest. The impression left on our mind from so much of the work as we have been yet enabled to examine, is certainly a favourable one. We do not pretend to have read through upwards of six hundred closely-printed pages of an elementary publication; but we have turned over many of its pages, and have read portions selected here and there through the volume, with attention bestowed and with gratification received. We judge it to be a very complete and comprehensive digest of the subject; one excellently adapted for the use of students of medicine, for the assistance of whom, we may suppose, it was primarily designed.

Dr. Balfour unites much medical experience, as well as chemical and physiological knowledge, with a lively zeal and earnestness in the promotion of botanical knowledge. Through this union of the needful qualifications in its author, the 'Manual of Botany' seems likely to prove just the kind of publication most suitable for students of medicine, by a judicious selection of the facts and principles, illustrations and explanations, which are best calculated to interest and instruct that class of students, without the foolish overloading of their memories with matters comparatively useless and irrelevant to their own professional objects, sometimes rather unfairly forced on stu-

dents of medicine, by the non-medical professors of botany. Indeed, we should conceive that Balfour's 'Manual of Botany,' with Babington's 'Manual of British Botany,' for the sake of a little practice in discriminating genera and species, would together constitute almost a sufficient botanical library for those students of medicine, and these are the great majority, who seek for a general outline of the subject only, and who prudently avoid trespassing too largely on their professional time, by attempting to follow up botany as a particular pursuit, either during their studies, or in after life when engaged in the absorbing duties of professional practice. From such works as the Manual now before us, a pretty ample knowledge of botanical doctrines and principles may be acquired without much interference with the more strictly professional branches of medical science; and perhaps, too, with advantages sufficient to compensate for that degree of interference which must inevitably occur from giving up any portion of time and attention to the learning of a subject which is quite of secondary importance in professional education, and of no importance in professional practice. We write not in ignorance or unadvisedly, in saying that we should carefully avoid employing any physician, in his professional capacity, who was very eminent as a botanist. And yet we do not the less believe and maintain that academical chairs of Botany ought always to be filled by individuals who have been educated to medicine. It is not necessary that a teacher of botany should be one who is advancing the science by original research and discovery, or by adding to accumulated stores of knowledge on the subject; but it is quite necessary that he should know well what has been done and ascertained by others; and, to our thinking, it is so desirable as to be almost a necessity, that he should have been brought up as a medical man, whether actually in practice or not so.

It will not be understood from our preceding and very willing testimony to the value of the 'Manual of Botany,' in its totality as a new work, that we do not find some small faults of detail in its pages. In some instances, we observe the earlier and therefore less perfect views given, instead of the later and more matured views of the same author on the same subject. For example, in quoting from Hewett Watson, on the subject of types in botanical distribution, the author of the Manual should not have copied them from the publication of 1835 (Remarks &c.) in preference to the later dated one of 1847 ('Cybele Britannica'), particularly with the use of the present tense, which implies that the arrangement now in use by this writer, is still the same as that of 1835. Some of the errors of detail are quite curious,

as instances of sheer inadvertences escaping the author's notice both in writing and in correcting the press. As an example of these, we may refer to page 481, where the familiar *Oxalis Acetosella* has by some mischance got placed in the order of *Polygonaceæ*. Of course these trifling blemishes will disappear in a second and revised edition, which we shall hope and expect to see shortly. But enough of opinion, we should wish to let the author explain and illustrate himself, by a few extracts, placed before the readers of the 'Phytologist.'

"In the compilation of this *Manual of Botany*," writes the author in his preface, "the object has been to give a comprehensive, and, at the same time, a condensed view of all departments of the science. Attention is directed, first, to the elementary structure of plants, and the functions of the simplest tissues, and then to the compound organs, and the functions which they perform. In the consideration of these subjects, the works of Jussieu and Hensley have served as a model. The application of physiology to agriculture, both as regards the cultivation of plants and their diseases, is brought under notice; the works of Liebig, Mulder and Johnston having been consulted. In the important subject of classification much aid has been derived from the standard work of Lindley. The system adopted is that of De Candolle, but in the arrangement and definition of the natural orders Walker Arnott has been chiefly followed. Many important hints have been derived from Henslow's excellent *Syllabus*, as well as from the systematic work of Endlicher. In detailing the properties of plants, care has been taken to notice all those which are important in a medical and economical point of view, Christison, Royle, Burnett and Lindley supplying valuable data. In the chapter on the geographical distribution of plants, a very general view is given of the principal facts brought forward by Meyer, Schouw, Humboldt, Berghaus, Watson and Forbes; and in Fossil Botany the labours of Brongniart, Ansted and Hooker have been made available."

"The relation which Botany bears to Medicine," we are correctly told in the author's 'Introductory Remarks,' "has often been misunderstood. The medical student is apt to suppose that all he is to acquire by his botanical pursuits, is a knowledge of the names and orders of medicinal plants. The object of the connexion between scientific and mere professional studies is here lost sight of. It ought ever to be borne in mind by the medical man, that the use of the collateral sciences, as they are termed, is not only to give him a great amount of general information, which will be of value to him in his after career, but to train his mind to that kind of research which is

essential to the students of medicine, and to impart to it a tone and a vigour which will be of the highest moment to his future investigations." "In the prosecution of his physiological researches, it is of the highest importance that the medical man should be conversant with the phenomena exhibited by plants. For no one can be reckoned a scientific physiologist who does not embrace within the range of his inquiries all classes of animated beings; and the more extended his views, the more certain and comprehensive will be his generalizations."

In remarks bearing on 'cyclosis,' the Author writes thus:—"The elaborated sap is sometimes clear and transparent, at other times it is milky or variously coloured and opaque. By Schultz it has been called *latex*, and the vessels transmitting it have been denominated laticiferous. The latex contains granules which exhibit certain movements under the microscope. These were first noticed by Schultz, who has written a very elaborate treatise on the subject." "Schultz looks upon the latex as a fluid of vital importance, and similar to the blood in animals. His views are opposed by Mohl, Tristan, and Treviranus, who consider the latex as a granular fluid containing oil, resin, and caoutchouc, which exhibits molecular movements only when injury is done to the vessels containing it." "The plants in which the movements are best observed, are those in which the latex is milky or coloured, such as various species of *Ficus*, *Euphorbia*, and *Chelidonium*. In fig. 223 [we cannot extract the woodcut here] there is represented a small fragment of a leaf of *Chelidonium majus* (*celandine*) which shows the currents of orange granules in the laticiferous vessels, their direction being indicated by arrows. From observations made last summer, I am disposed to agree with Schultz's statements. It is true, as Mohl remarks, that any injury done to the part examined causes peculiar oscillatory movements, which speedily cease. Thus, if the young unexpanded sepal of the *Celandine* is removed from the plant and put under the microscope, or if the inner lining of the young stipule of *Ficus elastica* be treated in a similar manner, very obvious motion is seen in the granular contents of the vessels, and this motion is affected by pricking the vessels or by pressure. In order to avoid fallacy, however, I applied the microscope to the stipules of *Ficus elastica*, while still attached to the plant and uninjured; and I remarked that, while pressure with any blunt object on the stipule caused a marked oscillation in the vessels showing their continuity, there could, nevertheless, be observed a regular movement from the apex towards the base,

independent of external influences, when the stipule was simply allowed to lie on the field of the microscope without any pressure or injury whatever. This movement continued for at least twenty minutes during one of the experiments, and I have no doubt might have been observed much longer. It is of importance to distinguish between those molecular movements which are caused by injury and pressure, and those which depend on processes going on in the interior of the living plant. My experiments are by no means complete, but they lead at present to the adoption of Schultz's opinion relative to the existence of cyclosis."

C.

BOTANICAL SOCIETY OF LONDON.

Friday, June 1, 1849.—George Cooper, Esq., in the chair.

The following donations were announced :—

A parcel of specimens from the Azores ; presented by Thomas Cawley Hunt, Esq., Her Majesty's Consul at St. Michael's.

Foreign plants from M. Sagot.

Robert Holland, Esq., of Cirencester ; W. M'Ewen, Esq., of Arundel ; and T. G. P. Smith, Esq., of Liverpool, were elected members.

The continuation of Dr. Ayre's paper 'On the Botany of Thame, Oxfordshire,' was read.—*G. E. D.*

DUNDEE NATURALISTS' ASSOCIATION.

Tuesday, June 5, 1849.—The President in the chair.

A paper was read by Mr. W. M. Ogilvie, F.B.S., being a botanical visit to the Den of Balthayock, Perthshire. Amongst the plants observed, were *Lychnis viscaria*, *Paris quadrifolia*, *Cystopteris fragilis*, and *Ceterach officinarum*. Mr. Ogilvie remarked that he had also found the *Ceterach* about five miles further east, in the Den of Pitroddie, where it had been pointed out to himself and Mr. Lawson by Mr. David Gorrie, of Errol. *Anomodon viticulosus*, *Hypnum complanatum*, *striatum*, *velutinum*, *populeum*, *curvatum*, *triquetrum*, *alopecurum*, and *ruscifolium*, *Pterogonum gracile*, *Weissia curvirostra*, *Trichostomum canescens* β . *ericoides*, *Bryum crudum* and *ligulatum*, *Orthotrichum coarctatum*, *Zygodon Mougeotii*, *Fissidens*

taxifolius and adiantoides. Most of these mosses were in fruit. *Jungermannia furcata*, *bidentata*, and *curvifolia* in fruit, with a number of commoner species. *Stereocaulon nanum*: Mr. Ogilvie remarked, that this was the third time that this rare lichen had been found in Britain, and all at a short distance from Dundee; it having been first discovered at West Water, Fifeshire, by Mr. Wm. Gardiner, and also in the Den of Airlie, Forfarshire (see 'Flora of Forfarshire'). Specimens of the various plants illustrative of the paper were exhibited.

Two papers were read from Mr. Geo. Lawson, F.B.S., Edinburgh, intitled respectively 'Botanical Rambles around Edinburgh,' and 'Scrambles on Samson's Ribs and Salisbury Crags.' The object of these papers was to make the members of the Association aware of the progress of Flora in the Edinburgh district.

Mr. Ogilvie also read a short paper on the *Oxalis crenata*, as to the desirableness of its introduction and cultivation in Britain as an article of human food.

Mr. Charles C. Maxwell, Dundee, was elected a fellow.—*W. M. O.*

Remarks on the genus Atriplex.

By JOSEPH WOODS, Esq., F.L.S., &c., &c.*

PERHAPS it is not wise for a botanist to publish speculations which do not arrive at any satisfactory results; yet the sum of our knowledge is made up of so many minute particles, that a person who adds a very little to what had previously been observed may afford considerable help to future investigators. It is with this view that I venture to offer to the Linnean Society a few remarks upon the genus *Atriplex*, which, as far as the English species are concerned, had slept in undisturbed repose from the time of Sir J. E. Smith till Babington, in his Manual, awoke it to new life and doubt by their insertion of several additional species.

The first of these is *A. nitens*, a common plant in the east of Germany, and reaching as far north as Hamburg. It belongs to a division having a mixture of hemaphrodite flowers, producing horizontal seeds; while the seeds of the female flowers, like those of the other divisions, are vertical. The division I believe is sound, but

in one specimen of *A. littoralis* I have found a few horizontal seeds, which were probably produced by hermaphrodite florets: such a case however is exceedingly rare. M. Moquin-Tandon says that the sepals or, as he calls them, bracts of the fertile flowers are altogether separate. I do not find this to be the case: they still remain slightly united at the base. Mr. Babington supposes *A. nitens* to have been introduced accidentally at Ryde in the Isle of Wight, the only British habitat. I do not know if it has ever been cultivated as a spinach. This has doubtless been the case with the *A. hortensis*, another species of this division which has not been naturalized in England, nor perhaps in Europe. It has not the silvery scales on the leaves which characterize the preceding species. The third species of this division found in Europe is the *A. vineta*, said to be cultivated about Verona, but according to Willdenow is wild at Venice on the shores of the Adriatic; adding however that the native plant differs "toto cælo" from the cultivated one. Willdenow distinguishes this from the two preceding by the toothed sepals of the fruit; Moquin-Tandon, from *hortensis* by the leaves glaucous beneath, and the lanceolate form of the upper ones, and from *nitens* by the even, not reticulate, sepals. M. Moquin-Tandon puts the Veronese plant among those not sufficiently known, and does not notice the Venetian one.

The second addition is *marina*. Linnæus in his *Mant.* 11, gives a plant under this name as found in England, and distinguished from *littoralis* by its serrated leaves and small stature. Babington makes no mention of the latter peculiarity, but adds that the perigone is closed, while in *A. littoralis* the sepals are spreading. I do not however find that the sepals of *A. littoralis* are usually spreading, except that they are often a little turned out at the top. It is acknowledged that the serratures of the leaves form not an absolute, but only a comparative character, and the species must be considered as doubtful. I find only *A. littoralis* in the neighbourhood of Lewes; but *marina* seems to be plentiful on the banks of the Thames. Moquin-Tandon doubts whether *littoralis* be anything but a variety of *A. hastata*; a conjecture for which I see no grounds whatever.

The preceding species offer no peculiar difficulties. Those with no hermaphrodite flowers, and a tendency to produce hastate or triangular leaves, are not so easily arranged. There are some particulars in the fructification which ought to be understood before we proceed to their investigation. In the first place, the size of the seeds is not uniform, and in some species there are distinctly two forms. Those

of the smaller calyces are round, slightly depressed, black and shining, while those formed in the larger calyces are much larger, even so much as to have occasionally three times the diameter of the upper seeds, considerably more depressed, of a dark chestnut, and though shining, wrinkled or shagreened: intermediate forms more rarely occur. The second thing is, that the sepals are at first small and smooth, but enlarge with the ripening fruit, and become tubercled on the back; while in some species the lower sepals occasionally become a pair of leaves including several flowers, and in those above them, the sepals, though they inclose a seed, still retain more or less of a leafy character, and rarely produce any tubercles on the back. This is particularly the case with *angustifolia*.

The next species I have to mention is *A. erecta*. Smith admitted an *A. erecta*, but he says it is very rare, while Babington's plant, in one form at least, is of all *Atriplices* the most common, and there is perhaps hardly a corn-field in the kingdom without it. Smith's character, "calyx of fruit all over armed with sharp tubercles," is softened by Babington into "perigone of the fruit more or less muricate on the back." It is probable that any specimen referred by Smith to *A. erecta* would also be so named by Babington, but certain that a great majority of Babington's plants would have been considered by Smith as belonging to *angustifolia*. I think the two species different, but I should find it difficult to characterize them. In the tubercles on the back of the sepals there is no difference beyond that already mentioned, and the lower sepals in *erecta* also occasionally become leaf-like. Yet the large leaf-like calyces are rarely if ever met with in *erecta*, and all the largest calyces in *angustifolia* are without tubercles. In the smaller calyces the tubercles seem very uncertain in both. In the normal form (but by no means the most common form) of *A. erecta* the central stem is erect, but it is sometimes so in *angustifolia*; and again, in the form of *erecta* which is so common in our corn-fields, the stem is usually as prostrate as that of any variety of *angustifolia* except the maritime one. Perhaps the spikes are rather more branched in *erecta*. I have not found in either any of the large, brown, wrinkled seeds.

The next species is *A. prostrata*. The name I believe must be changed as having been already applied to a New Holland plant. I have never seen a specimen. Babington professes himself but slightly acquainted with it. He rests upon the leaves, the calyces (cordato-triangular), and the flowers in separate clusters; but his description of the spikes is the same as in *patula*. The lower leaves are hastato-

triangular, as distinguished from ovato-hastate, with two horizontally spreading lobes; the middle leaves have two ascending lobes from a wedge-shaped base, a form extremely common in *Atriplex*, but not described in *A. patula*: the upper leaves are lanceolate in both. Babington suspects it may be a maritime form of *patula*. Moquin-Tandon refers it to a variety of his *A. hastata* corresponding with the *A. triangularis* of Willdenow. Koch considers Babington's plant as a form of *A. latifolia*, which is his name for the *A. patula* of Smith. Koch quotes also *A. oppositifolia* of DC., but thinks the prostrata of the 'Flore Française' a different plant. Yet Duby quotes the Fl. Fr. for the prostrata of Bouchier, the author from whom Babington has adopted the species. Although Babington suspects it to be a form of *patula*, he describes the seeds as smooth and shining.

Next comes the *patula* of Smith, which Babington agrees with that author in considering to be the *patula* of Linnæus also, both I believe relying on the herbarium. I confess however that the description of the leaves, "sub-delloideo-lanceolate," agrees better with those of *angustifolia*. The *A. hastata* of Linnæus has been brought back by Moquin-Tandon in the 'Prodromus' to this plant, and he adopts the name *calotheca* to the species which has of late years been considered as the *A. hastata* of Linnæus. I am disposed to think that he is right. The seeds here are described as rough and opaque. The lower seeds are indeed finely granulate, but not *asper* nor hardly *scaber*. I have never met with dull seeds in this or any other *Atriplex*, but this granulate surface has the effect of producing a degree of comparative dulness.

We next have *microsperma* of W. & K. This species Koch refers with the preceding to his *latifolia*, from which it is distinguished by its smooth and shining seeds, and by the smaller size of the calyx of the fruit; according to Babington the leaves are denticulate, but he says this also of *patula*. The form of the sepals varies too much to enable us to depend upon a difference between triangular, rhomboid and ovato-triangular, and what I have already said of the seeds is sufficient to show that a character drawn from them must be received with caution. I am willing to admit as three common species, *angustifolia*, with rhomboid leaves, and all the seeds black and smooth; *patula*, with triangular leaves, and all, or nearly all of the seeds depressed and wrinkled; and *delloidea*, with triangular leaves, and all, or nearly all the seeds thick, black and smooth. With *microsperma* I am unacquainted.

Next is *rosea*, and it is here that I am most completely at issue

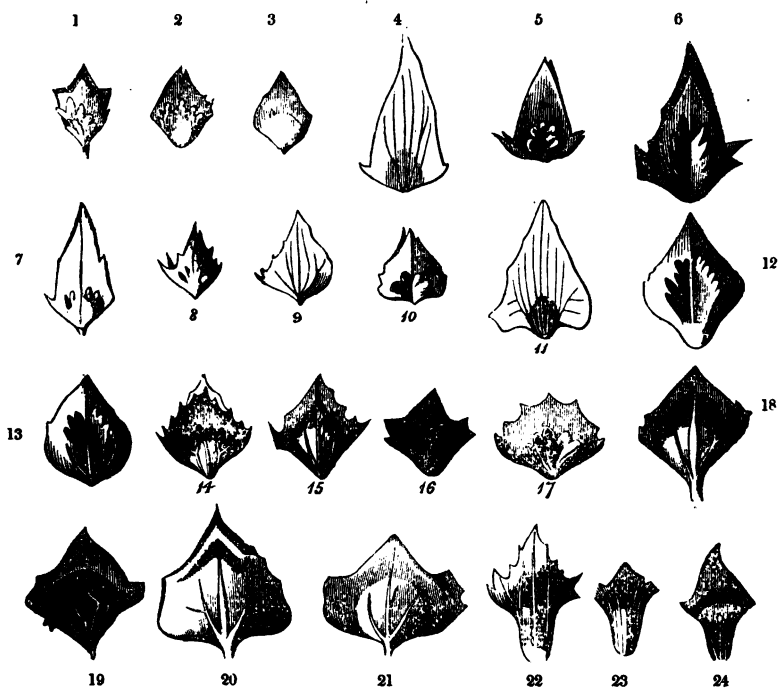
with Mr. Babington, and contend that his *rosea* has nothing to do with the *rosea* of Koch and of Duby. The plant I have gathered for *rosea* in the south of France and east of Germany is a more self-supporting plant than most of the genus; the lower branches indeed spreading, but by no means horizontal and decumbent, as they are in *patula* and *angustifolia*, and not unfrequently in *erecta*. The stems and branches are of an uniform buff colour, instead of green with resinous stripes, as in all the preceding species. This seems to me a character of great importance among the *Atriplices*; at least within the range of my experience I have not observed it to vary. The *rosea* of Babington is generally prostrate. It is perhaps a good species, though nearly allied to some of the forms of *A. patula*. I have some suspicion that it is the *A. crassifolia* of the 'Prodromus.' Koch relies on the indurated and whitened calyx, and the union of the sepals above the middle, for separating *rosea* and *laciniata* from the other species. Babington drops these characters, and in his plant the calyx of the fruit is often as dark as it is in *patula*.

I have four forms belonging to the section with buff-coloured stem and calyx, which I suspect may be as many species. The first is that of our sea-shores, with the fructification very much among the leaves, the character which Koch gives as distinguishing *rosea*. The second has long spikes, the upper part of which is naked, the leaves hardly occurring above the branches. This, from the description, I suppose to be the *laciniata* of Koch and others. The third is the self-supporting plant already mentioned. I take it to be *rosea* of Koch and of Duby, as it certainly is Reichenbach's notion of the *alba* of Scopoli, usually attributed to *rosea*. In all these the calyx is nearly square, and more or less tubercled on the back. In the fourth, which occurs with the preceding in the south of France, the calyx spreads from a campanulate base, and is usually without tubercles. I cannot with any confidence apply names to these from preceding authors. The first is certainly the English *laciniata*, and I think also identical with the one authentic specimen of the Linnean herbarium; but Linnæus says the stem is erect and the leaves deltoid, which can hardly be said of our plant. The second appears, as I have already said, to be the *laciniata* of Koch and Deby, and I believe of all modern continental botanists. Perhaps also it may be that of Linnæus. In both these the fruit is often stalked. The third is, I apprehend, the *rosea* of Duby and of Koch, but there is in the south of France an intermediate form with naked spikes, the lower leaves of which are hastate and deeply sinuate, while the upper are lanceolate and linear,

and nearly or quite entire. In what I have supposed to be *laciniata* the leaves are rather ovate or deltoid, and all nearly similar. The fourth seems to have been hitherto unnoticed; and if it should prove distinct from the second, I would call it *campanulata*. But the form of the sepals varies so much in these plants that I dare not place much reliance on it.

The seeds in all the plants of this set are similar, brown, compressed, and of a waxy surface.

I will conclude with a few observations on the sepals of the fertile flowers, for I cannot help thinking that more extended and more



Sepals of *Atriplex* as specified below.

exact observations will at length show some definite limits to the variations in their forms, and enable us to make more use of them in the specific characters. There is a continued, though not indeed a very regular progress from ovate to hastate or triangular, to rhombic, to a square placed diagonally, and thence to campanulate, a slightly waving line on the two sides of the square or rhomb forming an easy transition to campanulate with an extended termination. In the figures on the

preceding page (all of which are to a double scale), 1, 2 and 3 are from littoralis; 4, 5 and 6 from angustifolia; 7 and 8 from erecta; 9 and 10 belong to patula; and 11 is from a dwarf and imperfect specimen in Mr. Borrer's collection, gathered at Sidlesham, near Chichester (perhaps also patula); 12 and 13 are from the rosea of Babington, the first from Newhaven, the second brought by Mr. Lingwood from Havre; 14 belongs to what I consider as the rosea of Koch, but I must confess that the leafiness of the spike is not in it a strongly marked character; 15 and 16, from Toulouse, are taken from the plant I have mentioned as intermediate; 17 and 18 from the prostrate form of the laciniata of continental botanists, with all the leaves nearly similar,—they were collected at Arles; 19, 20 and 21, from Kent, belong to our laciniata. If this name should be ultimately attached to the continental plant, perhaps the English one might be called arenaria, from its usual habitat. It seems to occur in the west of France and in Portugal. The three last belong to what I have proposed to call campanulata: the two first from Toulouse, the last from Arles.

JOSEPH WOODS.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 580).

Solanum Dulcamara. In woods, thickets and hedges, especially such as are rather moist, by river-sides, and in watery, bushy places, also on the sandy or pebbly sea-beach; extremely common throughout the island and county. Var. β . Stem and leaves downy. *S. Dulcamara*, β . *tomentosum*, Koch, Syn. Fl. Germ. *S. littorale*, Raab. Nearly as common a form in this island as α , but variable in the degree of pubescence. On the Dover, and elsewhere about Ryde, &c. Var. γ . Stems much branched, diffuse or prostrate, not scandent, and, as well as the somewhat fleshy leaves and very angular branches, downy and almost hispid, with spreading or partly curved hairs. *S. lignosum* seu *Dulcamara marina*, Ray, Syn. ed. Dillen. p. 205? *S. Dulcamara*, γ . *marinum*, Bab. Man. p. 224. On the sea-beach. In loose sand of the shore at the Priory, betwixt Ryde and St. Helen's. Southsea beach, Portsmouth. In my specimens the leaves are all auricled, and the plant scarcely differs from var. β , except in not being climbing. Var. ϵ . Flowers white. Rare. In a street at Ryde;

Mr. Dawson Turner (ex Snooke, Fl. Vect.) Sandown Bay, and betwixt Calborne and Brixton; Mr. G. Kirkpatrick. I think I have seen it on banks of wet slipped land in Whitecliff Bay, in this island.

Atropa Belladonna. In woods, thickets and waste shady places, along fences, amongst ruins, and on the sea-beach, but not common in the county, and extremely rare in the Isle of Wight, if not quite extinct there. Near Knighton House, under the palings near the gardener's cottage, in considerable plenty; Mrs. Charles (now Lady) Brenton. The plant which was found by Lady B. several years ago is now quite extinct at Knighton, but a coloured sketch made by her from a living specimen at the time, removes all doubt of any mistake as to the species.* It has never occurred to myself in the Isle of Wight since the above account was received, and alterations made on the premises, or perhaps a knowledge of its dangerous qualities, may have caused its extirpation in the only known station at Knighton. In various places along the shore between Southampton and Netley, on the shingly beach, and under palings and banks. Near Warnford; Rev. E. M. Sladen. Old Park Wood (West Meon?) and Warnford; Miss L. Sibley. King's House, Winton. Road-sides at Otterbourne, abundant (still?); Rev. Messrs. Garnier and Poulter in Hamp. Repos. In very great abundance in several parts of Longwood Warren, where it was first indicated to me by my very zealous friend Miss G. E. Kilderbee!!! As this place possesses peculiar features, and abounds with a vegetation of a character in keeping with its own wild and dreary aspect, a short account of it may be interesting. Longwood Warren constitutes a tract of elevated ground, the centre of which is about three miles south-east of Winchester in a direct line, and swarms with rabbits noted in the market for their superior flavour.† Part of the warren has been enclosed from time to time and converted into arable, but a great deal yet remains in a state of nature, and could never probably be brought under profitable cultivation. The soil to me appears to be diluvial, and to consist principally of coarse sand or gravel, and pebbles, with I think a mixture of comminuted chalk; in most places parched and arid in the extreme,

* The common woody nightshade of our hedges (*S. Dulcamara*) is often called deadly nightshade by the uninformed, and being supposed the genuine plant of that name, has unjustly attributed to it all the virulent properties which belong only to the latter.

† Miss L. Legge, of Hinton Ampner, informs me that these animals devour the leaves of the *Atropa* with avidity, and strip the plants of their foliage as high as they can reach up the stem to browse upon it.

and sinking down under the feet as if compressible, in other parts spongy and overgrown with moss and lichens, but nowhere wet, marshy or boggy. The surface is in some places bare as the sea-beach, but for the most part is overspread with a scanty covering of plants, amongst which *Sedum acre* is from its abundance especially conspicuous. Two nearly parallel curved valleys, with gently sloping sides formed by the undulating ridges of the down, traverse the warren in a direction about north and south for perhaps a mile in length, and like the rest of the tract are perfectly destitute of trees, but studded with patches of stunted thorn and elder, like oases in the general wilderness around. Shade there is none but what these bushes afford, and the verdure when approached is anything but tempting to repose amidst the lurid vegetation of this valley of Hinnom. All the fetid, acrid, venomous and unsightly plants that Britain produces seem congregated on this blighted spot, a witch's garden of malevolent and deadly herbs, ready for gathering into her cauldron, which for aught I know may be nightly simmering and seething in this lone spot, as fitting a rendezvous for the powers of darkness on Hallowmas-eve, as their favourite Blocksberg in the Hartz forest, for a Walpurgisnacht commemoration. Beneath and around the clumps of ragged moss-grown elder and hoary stunted whitethorn, the first in some respects itself a "plant of power," meet shelter for the noxious brood it gathers about it, rise thickets of tall nettles and rank hemlock, concealing the deadly but alluring dwale,* the fat dull henbane, the gorgeous fox-glove of life-depressing faculty, the rampant nightshade, gifted with fatal energy in popular imaginings, and one at least of an uncertain and treacherous race, if free itself from the stain of bloodguiltiness; whilst scattered over the thriftless soil appear the black mullein (*Verbascum nigrum*) with its lurid leaves, the caustic and grotesque wake-robin, the stinking black horehound (*Ballota nigra*), and the drastic mandrake (*Bryonia dioica*, sic *Vecticé dicta*), which trails its gray-green cucumber-like shoots in singular abundance over the naked and stony surface.† The smell on a hot summer's day from such a multitude of ill-favoured weeds as these, and more which might be mentioned, is far from refreshing, and quite overpowers the fragrant

* Dwale I imagine to come from the Dutch *dwalen*, to err or go astray,—or more immediately perhaps from the obsolete verb to *dwaule*, to be delirious; the loss of sense and reason being the most prominent symptom induced by this poison. Mr. Gardiner ('Flora of Forfarshire') tells us that the fruit is called in Scotland "daft-berries" on the like account; "the insane root, that takes the reason prisoner."

† A decoction of the roots of the Bryony is employed by our cattle leeches in

honeysuckle, the only sweet and innocent thing that lives to throw a charm over what is else but dead, dreary and baleful. The *Atropa* will be found in great plenty not only in these valleys, but on the borders of the warren in various other places, rising to great bushy plants, and loaded in July and August with their fatal but too enticing berries. Were Longwood Warren less secluded and nearer to Winchester, the extirpation of this virulent plant would be a matter of public necessity, for the avoiding of accidents to children or ignorant persons.

The Peruvian *Nicandra physaloides* is occasionally met with in this island, partially naturalized, in and about gardens and by road-sides, but occurs too seldom, and is not sufficiently persistent where found, to entitle it even to an alien's place in the Hampshire flora. The common European winter-cherry (*Physalis Alkekengi*), the near ally of this and *Atropa*, is more likely to be found native or naturalized in the south of England, since it grows truly wild in the north of France, Germany and Belgium, under our latitudes, although scarcely so far to the westward as any part of Britain, and not in the vicinity of the sea-coast. It is, however, recorded in the Dillenian edition of Ray's Synopsis as having formerly been found at Stockport, in Cheshire.

Hyoscyamus niger. On dry waste ground, pastures, village greens, by road-sides, especially near towns and on calcareous soils, also along the sea-beach and on the high downs; tolerably frequent over the entire county and Isle of Wight. Frequent on waste ground, in farm-yards, old chalk-pits, and about houses in very many places of the island; in more truly natural stations on the sea-shore of Thorness Bay, East Cowes, and other parts of its coast, as also on the top of the high chalk downs, not uncommonly. Shores of Stoke's Bay. Frequent on Longwood Warren. Andover; Mr. Whale. Stubbington; Mr. W. L. Notcutt.

‡ *Datura Stramonium*. By road-sides, in waste and cultivated ground, about towns, on dunghills, and in newly turned-up soil of fields, gardens or building lots, here and there sporadically, and scarcely persistent long together in any one spot. In various parts of the Isle of Wight, but by no means common, and chiefly confined to garden ground, coming up amongst potatoes &c., and in most cases

some diseases of sheep; and I was told by the Rev. C. Hardy, of South Hayling, that a root was dug up a year or two ago in the island of that name, which weighed 47 lbs.

originating probably from prior cultivation of the plant as a popular remedy for asthma, for which purpose it is commonly preserved in rustic gardens. It used formerly to be found sparingly on Ryde Dover, but has not been seen there for many years, the progress of improvement having effected the destruction of this and many other plants which flourished on that spot before it was so much built over. In a lane at the north-east end of Godshill; Mr. W. D. Snooke, from whom I learn that it was common there some years ago, but I cannot find it now. A weed in the garden of the Shanklin Hotel, and in garden ground at Niton and Godshill, spontaneous. In Northwood Park, near the circular reservoir, on ground formerly a garden, a good many plants, and more disposed to spread itself than I have remarked here in general, September 21, 1844. I do not remember having noticed it in mainland Hants; nor has it been indicated to me by any of my county correspondents; there can, however, be little doubt that it occurs under similar conditions across the Solent to those in which it is found on this side of the water, and perhaps more frequently, as being a plant of decidedly eastern and continental distribution in central Europe. In Britain it seems to be more frequent and less fugacious in the eastern counties of England, and to become rare or extinct towards the western coast, but our summers are not warm enough for its free dispersion by seed, which is hardly to be regretted; for the thornapple is a troublesome and noxious cumberer of the ground in countries more congenial to its propagation. In Hungary I have seen it lining the road-sides for miles, and growing beneath the windows of the villagers in rank exuberance. In the middle and southern states of America, as at New York, Philadelphia and Charleston, the plots of ground left vacant for building upon are often covered by a little forest of *Datura Stramonium*, and its purple variety *D. Tatula*, which last I have never met with spontaneous in England, but have occasionally seen it in gardens. That they are only varieties I have convinced myself by tracing them through every intermediate shade betwixt blue and white. It is now, I believe, generally conceded that the thornapple is of Asiatic, not American origin, as indeed its latinized generic name *Datura*, of Arabic derivation, goes very far to prove, besides that the species was known before the discoveries of Columbus. There seems ground, however, for believing that in common with some other plants it was indigenous to the warmer parts of both continents, and that a nearly allied species, if not the same with the *Stramonium*, has been known in Mexico from the time of Cortes.

Verbascum Thapsus. In woods, hedges, dry pastures, by roadsides, on banks, wall-tops, and amongst ruins; common in most parts of the Isle of Wight and mainland Hants, most abundantly where the soil is calcareous, and often of gigantic growth (six or seven feet high). Var. β . Leaves less downy, bracts longer than the calyx. In a little lane between Brading Down and the lane leading from Adgeton to Morton; Dr. T. Bell Salter!! Dr. S. thought this might be the *V. thapsiforme* of Schrader (Monogr. Verb. p. 21), but that species is unknown to me except by description, and the only specimen I saw gathered by Dr. S. was not in a condition to enable me to decide on its identity with Schrader's plant, nor was more than one example found in the station above given.* Very common on declivities of the chalk downs, at their highest elevation. From the texture of the leaves known here sometimes as the "flannel plant." In Canada and the more northern parts of the United States the great mullein is quite an agricultural nuisance, overrunning such tillage lands as are left in lay or not kept properly weeded. With us it keeps pretty much within its legitimate boundaries, and its appearance occasionally in the corn-field may be regarded as purely accidental.

———— *Lychnitis*. By roadsides, in waste places, and on hedge-banks, &c.; very rare in Hants. Hambledon; Rev. Messrs. Garnier and Poulter in Hamp. Repos. My friend George Kirkpatrick, Esq., believes he once found either this or *V. pulverulentum* (*V. floccosum*, *W.* and *K.*) on a rubbish-heap by a limekiln near Carisbrook, most probably the former, as the more generally diffused species in England, but I have not seen specimens as yet from any part of this island or county. The latter plant (*V. floccosum*) has found its way into the catalogue of Hampshire plants, on the authority of Mr. Pamplin (see Watson's 'New Botanist's Guide,' Supplement), as growing about Old Alresford, but on inquiry of Mr. P. that gentleman has no recollection of having met with it there, and cannot account for its communication to the work referred to, nor has Mr. Forder, who resides at Old Alresford, ever fallen in with it in his neighbourhood, although a plant too singular in its appearance to be overlooked even by a tyro in Botany, did it really exist there. In Britain it is of pre-eminently oriental distribution, and almost exclusively confined to the two easternmost counties of England—Norfolk and Suffolk, where, as about Norwich and Bury, I have seen it in great plenty by

* This is most likely the *V. bracteatum* of Agardh, and of Presl; an apparently rare and very little known species or variety.

road-sides and in old pastures. The only recorded Scottish station in the Den of Cullen appears to me a most improbable one to be correct, and I think has not been confirmed by any botanist since the time of George Don. When repeating the experiment some years ago in Suffolk, of striking the plant to produce the falling away of the corollas through their irritable contraction, I accidentally inhaled a quantity of the loose flocculent tomentum, which gives the entire plant the appearance of being powdered with flour, and experienced very unpleasant sensations of heat and constriction in the throat and chest for several hours afterwards, accompanied by cough and defluxion from the mucous membrane of the nostrils, threatening inflammation of the respiratory organs.

Verbascum nigrum. In similar places with the two foregoing species, but very rare, or at least extremely local in the Isle of Wight. Near Arreton and Merston; Mr. W. D. Snooke!!! I find it in several places about Arreton, but more especially abundant along the hedge-banks of two fields on either side of the road from thence to Merston, near the foot of St. George's Down. Very sparingly by Alverston farm, near Newchurch, at the extremity of the Lynch.* Near Ryde; Miss Roberts! but I have never seen it near this town myself. Plentiful enough in various parts of mainland Hants, particularly on the chalk. It abounds for miles all around Winchester, and occurs profusely in some parts of Longwood Warren. Plentiful betwixt Petersfield and West Meon, and about Bordean Hill, Oakhanger. A stately ornament to the road-sides and in the shady green lanes about Clanfield, which it adorns in great plenty with its long wand-like spikes of thickly clustered flowers, varying from deep golden to palish yellow, relieved by the dark verdure of its broad root-leaves. Fareham churchyard and Maindell; Mr. W. L. Notcutt. Belgrave Lane, Andover; Mr. Wm. Whale. It is remarkable that the only Isle of Wight stations for this plant are on the greensand, whilst across the water it evinces its usual predilection for the chalk formation above all others.

——— *Blattaria*. On chalky, gravelly or clayey banks, pastures, and by road-sides; a very uncommon plant in the Isle of Wight, if not over the whole county, in a truly wild state; not so unfrequent in a dubiously indigenous or certainly naturalized condition.

* *Lynch* is a name applied to several woods in the Isle of Wight, but I do not know the precise force and limitation of the term. The British word for a grove is said to be *llwyn*; perhaps that and the modern provincialism may have a common origin.

Found by me ten years ago in a retired lane leading from Gauson's, or Gaskin's Barn towards Carisbrook, with yellow flowers, and I think certainly wild. I have also gathered the normal yellow-flowered variety near Southampton, but the locality has escaped my recollection. Var. β . Flowers white, copper-coloured at the back. Not very uncommon, but usually in suspicious places near houses or gardens, being in fact that form of the moth mullein oftenest seen with us in cultivation. I have picked it occasionally on the Dover near Ryde Castle, and in Binstead churchyard; in both places the outcast of gardens. I have received it as apparently wild from Swainston, and from near Fern Hill, by the late Mr. J. Tayler,* but I fear only escaped from gardens in both localities. A plant by the roadside betwixt Haslar and Clay Hill, by Gosport, 1848. I have seen it elsewhere in the island and on the mainland of Hants, but never, I think, where it could be deemed truly indigenous. The species is pretty widely spread over England, although rarely, I believe, abundant anywhere, and in the western counties is associated with, or partly replaced by *V. virgatum*, a species not very likely to occur in Hampshire. Andover; Mr. Wm. Whale—(wild?).

Orobanche rapum (*O. major*, Sm. &c.; not it is said of Linnæus). On heaths and in bushy places where furze and broom abound, on the roots of which shrubs it is partially parasitic; rare, at least in the Isle of Wight. On Briddlesford Heath and parts adjacent, on the roots of the furze, not unfrequent; first noticed by Mr. Borrer during an excursion I made with him in 1840 !!! Near Lynn farm, on a bank, a specimen or two, 1843. Amongst broom and furze on an extensive piece of heathy ground betwixt Quarr Abbey and Ninham it occurs in great plenty, and I believe annually so; first found there May 30, 1845. In full flower, and very tall, with many of the lower flowers quite faded, May 28, 1846. In greater abundance this year than I ever remarked it in former seasons. All these stations are in East Medina and in the neighbourhood of Ryde; I have not yet found it in West Medina, nor have I any certain station to record for it in mainland Hants, although I cannot suppose it to be wanting or even very rare in that part of the county. I feel pretty confident of having found it a few years back at Embley, the seat of Edward Nightingale, Esq., near Romsey, but at that time I made no register of any but Isle of Wight plants. Last year many specimens of a tall *Orobanche* were found in a clover-field, in their neighbourhood, by the Misses Sibley, of Hall Place, near West Meon, which I saw in a somewhat

* The family of that name in Ryde spell their name as above, with an *e*, not with an *o*.

withered condition, and ascertained not to be *O. elatior*, although the specimens had not quite the usual aspect of *O. rapum*, with which they otherwise agreed in character, as far as could be seen in that state. A similar tall plant of the genus I also remarked last year, from the top of the coach that runs from the Andover Road Station to Andover, likewise in a clover-field, but had not the means of getting at the only specimen seen.

Orobanche elatior. On the roots of *Centaurea Scabiosa* and of red clover (*Trifolium pratense*)? very rare? Found at Anglesey, near Gosport, as I learn from Miss L. Minchin, who assured me she had it on the authority of a gentleman who knew plants well. Alverstoke: found either by Dr. Pulteney, or by the authors of the catalogue of Hants plants in the 'Hampshire Repository,' so often quoted in these notes. Some carelessness of mine in copying out the notice of this last station, which must be very near the former, prevents me from giving the authority with more exactness, and since I have seen no indigenous examples of *O. elatior*, its occurrence as a Hampshire plant needs confirmation, the more so as other species of the genus are liable to be mistaken for it. I have great reason to think, however, that it was once observed by me in a clover-field south of Carisbrook, some years before I began collecting materials for the island flora, and therefore suffered to pass without due examination and record of the fact.*

———— *Hederæ* (*O. barbata*, Bab. in E. B. &c.; not of Poirét). At the roots of ivy in damp woods, on rocks, walls and shady banks, chiefly, if not exclusively, confined to the back of the island, but there very frequent. At Eastend, Luccombe. Common at Bonchurch,

* Since this paragraph was written, on recurring to my MSS. I find amongst my early notes (1837) the following entry:—" *Orobanche elatior* ? I found a clover-field at the end of Dark Lane, near Carisbrook, quite overrun with it, August 6th. Unfortunately, and at this distance of time unaccountably, I neglected examining the species farther, which leaves it doubtful whether the plants after all might not have been merely tall individuals of *O. minor*, but that species was then quite familiar to me, and is noted as having been gathered abundantly by Godshill the day before. Since writing the above, and on examining a bundle of plants collected in the island five or six years back, I found a single specimen of an *Orobanche* having the characters of *O. elatior*, namely, the stamens glabrous above, but glandular-hairy on their lower and dilated part, yet without any label attached recording the place or date of collecting. I have little doubt, however, but that the specimen was gathered in the above locality, and after drying laid aside and forgotten. It is certainly not *O. minor*, and it possesses neither the characters nor aspect of *O. major* (*O. rapum*). August 22, 1843."

and on banks at Ventnor.* Abundant about Steephill, in the grounds &c. In Pelham Woods, and generally throughout the Undercliff in moist shady places, and on the ledges of the rocks that shut in that romantic district to the northward. I think I have seen it in Quarr Copse, near Binstead, and in the Priory grounds to the westward of Ryde, but finding no entry made of its occurrence beyond the limits of the Undercliff, I am probably mistaken in these habitats. Assuredly too near *O. minor* in character to be satisfactory, and as a variety of that species I had long deemed it. Latterly, however, I have inclined to a different opinion, and am now disposed to consider it with Mr. Babington as quite distinct. Considerations founded on geographical distribution have principally led to this change of opinion. *O. Hederæ* is quite a southern, maritime, and western plant, and is one of those species that indicate with us the point of transition from the oriental to the occidental type of vegetation. *O. minor*, on the other hand, is as much an inland as maritime species, and its distribution tends rather to the eastern than to the western side of the kingdom in England, whilst it is apparently wanting in Ireland, where *O. Hederæ* grows not unfrequently.† I am not aware of any station for this species in the interior of the county or Isle of Wight, where the clover-fields are overrun with *O. minor* as a pernicious agricultural weed, nor have I ever seen it along any part of the coast even of mainland Hants. The two species differ considerably in aspect, which I think may be fairly adduced as collateral, though not primary evidence of their distinctness. *O. Hederæ* is a slenderer plant in general than *O. minor*, the stems of a deeper purple, and often two, three, four or more from the same swollen base, which very rarely happens in *O. minor*, in which the stems are almost always solitary, or at most two or three from the same caudex. The flowers in *O. Hederæ* are usually fewer, and always more distant than in *O. minor*, besides other differences, such as the shape of the stigma, which it is needless here to advance as arguments for their separation. The figure of *O. Hederæ* in E. B. Supplement, tab. 2859, is admirable, as is the accompanying description by Mr. Babington, who gives this species as perennial without a sign of doubt in the Manual, which the occasional remains of former stems and its habit of growing in clumps seem to confirm.

* The progress of building has gone far to diminish its frequency of late years at these two places.

† All the stations given for *O. minor* in Mackay's 'Flora Hibernica' evidently belong to *O. Hederæ*.

These vestiges of decayed stems must not always be supposed the production of the preceding year, unless found on the plant early in the season, for this species begins to flower in June, and the individual stems quickly spring up and perish, when they are succeeded by others till August, or even now and then later. The perennial nature of *O. Hederæ*, if once indisputably established, would be decisive in favour of its distinctness from *O. minor*, which latter is unquestionably, I think, of much more ephemeral duration.*

Orobanche minor. Parasitic on a variety of plants belonging to very different natural orders, but far most frequently at the roots of clover (*Trifolium pratense*) in natural and artificial grass-fields. Incomparably the most abundant species of the genus in this island and county, infesting our clover-fields so universally and extensively as to come under the head of an agricultural nuisance. It would, I think, be difficult to find a field of clover in the Isle of Wight absolutely without a specimen of *O. minor* upon it, and too often it makes its appearance by hundreds, nay, thousands, on a clover piece of a few acres in extent. Hence it is superfluous to give localities for a plant which is equally plentiful in every part of the island in turn, whatever the soil may be, whether chalk, sand or clay, but which at the same time is permanent in no station, and abounds more in some years than in others. Our farmers are not aware of the damage their clover sustains from this plant, from ignorance of its parasitic attachment, and because it never, I believe, destroys the crop like the clover dodder (*Cuscuta Trifolii*, Bab.), but only weakens and stunts the plants with which the tuberous base of the stem is in subterranean connexion.† The evil not being of very glaring magnitude, and the cause unknown and unsuspected, the *Orobanche* of the clover is allowed to spring up unchecked, and to overrun a whole field, when its eradication by hand might be accomplished with ease before it has had time to multiply inordinately by seed. The broomrapes grow with almost mushroom rapidity, and this one in particular shoots up in a quick succession of individuals the summer through, till quite into autumn, and has as much the look of an annual as the last has of being perennial in duration. There can be little doubt that the seeds remain dormant in

* The *Orobanche* alluded to by Curtis in 'Flora Londinensis,' as growing on walls in Pembrokeshire, is most likely the *O. Hederæ*.

† I have never seen any of these singular parasites visibly connected with a large and healthy specimen of the species of plant to which they severally attach themselves, but have always found their victim a poor, stunted, flowerless thing, sometimes hardly discernable above ground.

the soil till the land comes again in rotation to be laid down in clover, when they vegetate, and a crop of young broomrapes springs into existence, which if pulled up by hand as they come into flower, would have no chance of spreading about the field that season, and if thus carefully weeded out for a year or two might be got rid of altogether. *O. minor* sometimes makes its appearance with us in pots of greenhouse plants; Mr. G. E. Smith and myself have remarked it on *Pelargonium*, and the former has seen it on *Angelica Archangelica* in a garden. Several plants on *Apargia* (*Oporinia*) *autumnalis* on a bank close to Morton Farm, between Brading and Sandown, July, 1843. On *Plantago Coronopus* by the cliffs above Sandown Bay; Mr. J. A. Hankey, June, 1843 !!! *Var. β.* Herb pale, yellow or amber-coloured. Clover-field by Lee farm, near Shanklin. *Var. γ.* Flowers pure white or nearly so. In a field near Garrett's, by Newport, in plenty, June 16, 1846. In many of the specimens here gathered the flowers were milk-white, more commonly, however, somewhat tintured with the ordinary purplish colour. Probably common on mainland Hants. West Meon; Miss E. Sibley. In a field near Appleshaw. Near Andover, 1848. Clover-field near Monument Lane; Mr. W. L. Notcutt. In all the specimens of this plant that I have examined, and they are very numerous, the stamens are thickly clothed with hairs at the base on their inner or anterior surface, as Smith also remarks.

Orobanche Picridis. On *Picris hieracioides*; very rare? Observed by myself growing abundantly on the plant just named, July 9th, 1844, upon a ledge of the Freshwater cliffs called by the cliffsmen Rose Hall Green, but supposed to be only *O. minor* at the time. Since then the same plant has been found in Cambridgeshire, by the Rev. W. W. Newbould, and determined to be the *O. Picridis* of Schultz. A careful comparison of my Isle of Wight plant with the excellent figure and description in the fourth volume of the 'Supplement to English Botany,' proves it to be identical with the Cambridgeshire plant in the minutest particular; close proximity of the sea, and consequently the saline atmosphere in which it grows, not having effected the smallest change in its appearance and structure. I visited Rose Hall Green* again this season, at the latter end of June,

* The cliffs between Freshwater Gate westward to the Needles, which rise a stupendous rampart of chalk to somewhat above 600 feet, have the uniformity of their otherwise perpendicular face broken occasionally by sloping ledges or terraces, at various elevations, and by banks of debris accumulated at their base through the falling every winter of vast fragments of the chalk rock, split off by the joint agency of rain and frost. Few of these ledges are accessible to any but the cliffsmen, but some can

and found the *Orobanche* in very great abundance all over its surface, exclusively on the *Picris*. Many of the plants were then quite out of flower, and others only coming into blow; some of the stems were two feet in height, many only a few inches, sometimes very stout and thick, at other times comparatively slender, without reference to their elevation. This species comes too close to *O. minor* not to excite great suspicion that they may be forms of one plant, but when closely examined, the characters, though of the slightest kind, and such as would hardly be admitted as valid in any other genus, do seem by their reproduction in different countries and climates of Europe, to stamp the *Orobanche Picridis* with the semblance at least of specific permanency. Mr. Babington justly observes it has a different look from *O. minor* and *O. amethystea*; the latter I know nothing of practically, but can bear testimony to the truth of the remark as regards

be approached from a boat, and to one or two a tolerably safe but dizzy path conducts the adventurous explorer from the summit of the cliff. These ledges are the fields from which the cliffsmen reap their annual harvest of samphire, which here flourishes in prodigious quantity, and they support besides a luxuriant vegetation, curiously made up of maritime and inland species that grow promiscuously together. The larger of these hanging gardens of Nature's planting, the cliffsmen designate "greens," and the smaller (I think) "meads,"—each having its appropriate name, as Pepper's mead, &c. Rose Hall Green is one of the most extensive of the greens, and can only be approached from the water, and in calm weather, as the surf caused by the almost constant swell is very heavy on the rocks when there is any wind. A scramble of a few minutes over the huge chalk blocks, and up the steep bank of débris by the Wedge Rock, brings you on the green, which is thickly clothed with a vegetation similar to that which covers all the rest, and consisting of that staple commodity, samphire, immense tufts of *Beta maritima*, and quantities of a sturdy-looking species or variety of *Daucus* (*D. hispidus*?), with prodigiously thick and hispid stems, very broad hairy leaves, and great hemispherical, and even perfectly globose umbels; a gigantic form of *Hieracium Pilosella* (var. *peleterianum*?), with short stolons and lanceolate leaves, densely clothed with long shaggy hairs above, snow-white and tomentose underneath; *Parietaria officinalis*, which is here seen in its most truly native state, and in profuse luxuriance; *Picris hieracioides*, with its parasite burden, *Halimus portulacoides*, *Sinapis nigra*, and (very lately found not far from this spot by Mr. Albert Hambrogh) *Raphanus maritimus*—another most interesting addition to our island flora, already so rich in rare and curious plants. Various species or forms of *Atriplex*, *Armeria vulgaris*, *Anthyllis vulneraria* (var. *A. maritima*, Schweig), *Frankenia lævis*, *Hippocrepis comosa*, a maritime variety of *Lotus corniculatus*, &c., &c. are amongst the prevailing species on these magnificent bulwarks of our southern line of coast. The influence of the sea air in giving bulk and obesity to many of the plants inhabiting these shelves of the chalk cliffs is very remarkable, whilst in others it induces no change of structure or appearance whatever.

the former. The very pale, cream-coloured or even milk-white flowers are not discriminative of *O. Picridis*, being found, as before remarked, in *O. minor* occasionally; but the greater curvature of the corolla, at its posterior extremity, in *O. minor*, even in the upper flowers, before the swelling of the ovary could possibly influence the degree of flexion, seems a good distinction, though a mark not very available in description, since one of comparison merely. I cannot say that I perceive the difference Mr. Babington speaks of in the form of the sepals, which varies extremely in both these species, but so far as I have yet examined the two together, the sepals of *O. Picridis* are much longer than in *O. minor*, fully equalling, or even a little exceeding the entire length of the perfectly expanded corolla, whereas in *O. minor* the sepals do not reach beyond the tube of the corolla, which is, I think, also smaller than in the *O. Picridis*. The want of the notch or sinus in the upper lip of the latter is a nice character, about which it is not always very easy to satisfy oneself, for this part of the corolla is folded anteriorly in the centre, so as to have all the appearance of being two-lobed, and a shallow emargination does appear to me often to exist, which emargination is itself very variable in degree on the flowers of *O. minor*. Again, I find, both on a former and recent examination, that in this island the stamens of *O. minor* are quite as hairy at their base within, as are those of our new plant—that is to say, very villous in each species. In *O. minor* the style is with us as it should be, very nearly glabrous, and that of *O. Picridis* hairy (mostly in front) along its whole length, and towards the summit all around its circumference, but as if to nullify the value of this apparently good distinction, the careful and accurate Bertoloni, whose description of *O. Picridis* is excellent, writes, “*Stylus quoque glaberrimus!*” Without by any means intending to affirm that *O. minor* and *O. Picridis* are varieties of the same plant, I cannot help believing that the European species of this genus have been greatly over-multiplied, and that for want of better discriminating marks we have been content to adopt for characters in framing our specific formulas, one of the most confessedly variable conditions of vegetable organizations, the smoothness or hairiness of particular parts. A tolerable degree of constancy in this respect amongst the real or pretended species of *Orobanche*, affords plausible argument for the derivation of distinctive characters from attributes thought usually too mutable to be relied on in most other cases. Bertoloni himself (one not much addicted to “splitting”) describes thirty *Orobanches* in Italy,* yet

* Fl. Ital., vol. vi.

merges *O. Hederæ* with *O. minor*, retaining *O. Picridis* as a species. To my perception the first of these has as good a claim to be held distinct as the last from *O. minor*, not so much from the excellence and stability of its technical characters as from its geographical distribution and apparently perennial duration, as well as from a certain difference of aspect, which may, however, be produced from local peculiarities, such as shade and moisture. The capsules and seeds of the various *Orobanches* appear to have received little or no attention, and as far as my own observations have gone, which are restricted to a very few of the commoner species chiefly, they are remarkably uniform in size, shape and colour: still I think characters might be discovered in these organs, if not in all, at least in some of the species, which might help to settle their distinctive pretensions on a firmer footing than they are at present.

Orobanche cærulea, Vill. ? Parasitic on *Achillæa Millefolium*, in pastures and on banks and borders of fields, but very rare. First noticed by the authors of the catalogue of Hants plants in the 'Hampshire Repository,' as growing at Steepphill, in this island, but I am not aware that it has occurred since in that locality. Field near the cliff opposite the barracks on Royal Heath, between Sandown and Lake; Mr. J. E. Winterbottom, July, 1841! In a sandy field just beyond Royal Heath, on the foot-way to Shanklin; Miss Phillips, July, 1845!! On the grassy edge of the cliff at the north end of Sandown Bay; Mr. J. A. Hankey, June 21, 1843!!! (several times gathered there since, by myself). A specimen found betwixt Lake and Shanklin, by Dr. T. Bell Salter, in August, 1843; and in June, 1845, the same acute botanist picked another example at Bordwood (a little more inland than the foregoing stations), the largest specimen I have yet seen, being upwards of sixteen inches high, with three or four stout branches from the bottom of the stem. In a pasture field (parsonage glebe) adjoining the rectory at Yaverland, sparingly, August 3, 1843. In particular seasons a good many plants of this species come up in that field, and along the grassy verge of the cliffs by the path-way leading upwards to the summit of Whitecliff Bay, but are extremely capricious and uncertain in their appearance. No other part of the island, save this narrow strip of greensand along the coast line of East Medina, from Yaverland to Steepphill, has hitherto yielded this curious, well-characterised and beautiful *Orobanche*, but it may fairly be expected to occur on the same formation along the south-west shore line of sandy cliffs betwixt Blackgang and Freshwater. I have never seen it but on diminutive, starveling specimens of the

common yarrow or milfoil—doubtless so depauperated through its insidious attachment. Near Alton, Hants, June 29, 1621; Goodyer in Gerarde em., p. 228. By the earlier English botanists this species was apt to be confounded with a leafless orchidaceous plant—the *Limodorum abortivum* of Swartz (*Orchis abortiva*, L.), not hitherto detected in England, but perhaps from its geographical range in the north of France and Belgium, no improbable addition at some future time to the British Flora. Goodyer's description, however, leaves no room to doubt that our *Orobanche cærulea* was the plant found by him near Alton, and not the *Limodorum*. In particular he notices the want of a tuberous enlargement at the base of the under-ground portion of the caudex, in which this differs from all our remaining British species. His words are,—“The lower part of the stalk within the ground is not round like *Orobanche* (*O. rapum*), but slender or long, and of a yellowish white colour, with many small brittle roots growing underneath confusedly, wrapped or folded together like those of the common *Nidus-avis* (*Neottia Nidus-avis*).” He goes on to say,—“The whole plant as it appeareth above ground, both stalkes, leaves, and floures, is of a violet or deepe purple colour. This I found in the corner of a field called Marborne, neere Habridge in Haliborn, a mile from a towne called Alton in Hampshire, being the land of one *William Balden*. In this place also groweth wilde the thistle called *Corona fratum*” (*Carduus eriophorus*). The freshly opened flowers are of a beautiful deep amethyst blue, but quickly become dingy, and the stem has somewhat of a metallic lustre, with an appearance like that of partially rusted iron which has been lightly rubbed over in places with blacklead. I do not see how our plant can be the *O. cærulea* of Villars, in which that author expressly tells us the bracts are solitary,* unless perhaps he overlooked the two lateral and inner ones, which are very narrow, and much smaller than the middle and outer bract. But his rather meager description is not in other respects applicable to our English *O. cærulea*, for although the specific character of “caule simplici basi bulbosa,” may be construed to signify the simple enlargement of the base of the stem, as it occurs with us, the latter cannot be said to be “garnie d'un oignon sphérique,” since, as we have shown above, the absence of a decidedly tuberous extremity to the caudex is a character of our plant, not found, so far as I know, in other British species.† I may here add, that the flower-

* Hist. des Plantes de Dauph. ii. p. 406.

† In very many of the specimens I have examined the caudex is enlarged, not at the extremity, but a little above it, and wholly or partly below the surface, into a fusiform shape.

ing time of our various *Orobanches* begins earlier than the period assigned in the books; *O. rapum* is in Hants a May flowerer, and none of our other species are later than the middle of June before beginning to blossom.

N.B.—*Orobanche ramosa* has found its way (in print at least) into the Hants flora, and if hemp was ever cultivated to any extent in the county, this, its peculiar parasite, may well be supposed to have occurred amongst it. But the *O. ramosa*, β . of the old 'Botanist's Guide,' is, as has been clearly shown by Sutton (Linn. Trans. iv. p. 180), the *O. flore minore* of Ray's Synopsis (Dillenian edition) or our *O. minor*, confounded by Hudson as a variety with the true *O. ramosa*, in the second edition of the 'Flora Anglica,' the genuine *O. minor* not having at that time been recognized as a distinct species, or indeed much known to the botanists of the day. To the possession of the true *O. ramosa* of Linnæus as a species indigenous to Hampshire, we can at present advance no claim.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
July 7, 1849.

(To be continued.)

[The reader will please make the following corrections in Dr. Bromfield's last communication:—

Page 573, line 26, *for* "unhospitably," *read* "unprofitably."

Page 576, *Pulmonaria virginica* should have been printed as a footnote. Line 3, *for* "Volkyniæ," *read* "Volhyniæ."

Page 577, line 13, *for* "Gerard's Em.," *read* "Gerarde em."

Page 578, line 9, *for* "purpuro-cæruleum," *read* "purpureo cæruleum."

I wish distinctly to state that the above are typographical errors, and were corrected in Dr. Bromfield's proof, which unfortunately arrived after the sheets were printed.—E. N.]

BOTANICAL SOCIETY OF LONDON.

Friday, July 6, 1849.—E. Doubleday, Esq., V.P., in the chair, which was afterwards taken by J. Miers, Esq., V.P., F.R.S.

Mr. Jasper W. Rogers read a paper on the Use and Properties of Peat Moss, and the value of Peat Charcoal as a disinfectant and fertilizer. The object of the paper was to show the useful purposes into which the bogs of Ireland could be converted by the extraction of peat from them for its conversion into charcoal. The charcoal extracted from the Irish peat was far preferable to wood charcoal, and one of its greatest advantages was the effect it had as a disinfecting and dedorizing agent. Wood charcoal had not that property to nearly such an extent. It was, therefore, singular now, when there was so much excitement about sanatory matters, that an agent so powerful should have been so much overlooked. It was also valuable as being a powerful absorbant, as it would absorb about 80 per cent. of water, and keep it for the benefit of the soil which might surround it; while it took up the greater portion of the obnoxious gases inherent in night soil and sewage matter, and thereby did away with any bad effect which might result from them. It, therefore, was capable of being converted into a manure of the greatest value,—the proportions being two-thirds of night soil to one-third of charcoal. It was impossible to find a better manure for the food of plants; for, containing as it did a large quantity of carbon, it exhaled the ammonia and the salt which were in the night soil, did not allow them to escape, but treasured them up, and in due time gave them out for the sustenance of the plants placed under its influence. No better agent could be found for improving the sanatory condition of the metropolis. Were a proper system observed by means of this agent, the sewage matter of London could be converted into a source of great profit; while the bad effects arising from the effluvia which emanated from such matter would be got rid of. According to a calculation he had made, the matter so produced by a family of six, would, in the course of a year, if subjected to the influence of this agent, yield £30 per annum; and supposing the cost of the charcoal, and other expenses, to amount to £15, which they could not exceed, there would still be a clear profit of £15 yearly. That might be doubted, but it was a fact, which he had ascertained after the most careful consideration; and he had further ascertained, that were all the houses in London which were rented at upwards of £10 to adopt that system, they would earn a

profit of £15 per house, or three millions of money per annum. In order to do that, they would have to collect the refuse from all these houses into one great cesspool, and then apply the agent he alluded to; and were that done, it would be the best means of clearing the metropolis of that nuisance which now so much affected the health of its inhabitants; for as matters now were, who could stand for an instant in the vicinity of one of those gratings in the street without being sensibly affected by the effluvia which proceeded from it? After some illustrations in proof of his statements, Mr. Rogers concluded his paper by stating that he was about to give the public a proof of the truth of his theory, by erecting an establishment for the purpose of carrying it out. He did not see the smallest difficulty there could be in carrying it out in the metropolis. At the present time, their ashes were collected for the benefit of the parish in which they respectively resided; and why should they not give up the other refuse matter in like manner to the parish, upon a proper understanding? It was true no experiment had been as yet made on a large scale, in order to test the truth of his theory, but the reason was, that charcoal could not be obtained on a large scale. He had been requested by the Guardians of the Poor at Macclesfield, some weeks ago, to try the experiment on a nuisance there; and although the charcoal was of a very bad description, the peat having been obtained from a neighbouring moss, it had been eminently successful, and he had no doubt would be so in every case.

Mr. J. Toulmin Smith said, while he did not deny the efficiency of the agent spoken of by Mr. Rogers, he was a strong advocate for the use of liquid manure, as after long practical experience he had found it best suited for the purposes of vegetation. On his own premises, he had a tank, into which the whole of the excretions were conveyed from the house, and which he pumped out and applied for garden purposes in its liquid state, and he had always found it answer well.

Mr. Rogers conceived that Mr. Smith resided in the country.

Mr. T. Smith: At Highgate.

Mr. Rogers: Well, your system might do well at Highgate; but how was a man to carry it out in the heart of London? There was no doubt that liquid manure was valuable, but the moment it was pumped out of the tank, and came in contact with the air, that moment the ammonia passed from it, and was lost; but when mixed with charcoal, the moment the ammonia came in contact with the charcoal it was fixed, the charcoal acting as a reservoir for it, and giving it out to the plant when it was required.

Mr. T. Smith said, into his tank a large quantity of water was run; and this he conceived was the best agent for mixing the refuse matter, and he thought it would also be the best agent for carrying away the refuse of London.

Mr. Rogers admitted water to be good enough in its way, but when a drop of it fell on one of those particles of charcoal it was retained, and given out as nourishment to vegetation in due time; whereas, if they poured water on the ground, and a bright sunshine was to follow it, it was all absorbed by the atmosphere, and vegetation got no benefit from it.

Mr. Edwin Chadwick said he came there rather to gain information, than to make any remarks of his own. He admitted that there were cases where the agent referred to could be applied with propriety, as he had heard of sugar casks being returned to the West Indies filled with manure disinfected by such a process as that to which their attention was now drawn. He did not, however, think that as regarded London the system could be brought into practical application. The liquid manure he considered was quite sufficient for agricultural purposes. It was easy of transmission, and was now sent a considerable way into the country at a cheap rate, so that he saw no reason for a change; at the same time, he did not discourage such investigations as the present, as the more facts they could bring together on so important a subject, the better.

Several other gentlemen spoke upon the subject, alluding to its great interest; when Mr. Rogers sat down amidst much applause.

Thanks were voted to Mr. Rogers for his valuable communication, which was deemed worthy of the most serious consideration of the inhabitants of London.

DUNDEE NATURALISTS' ASSOCIATION.

July 3, 1849.—The President in the chair.

A paper was read from Mr. David Gorrie, Errol, on the progress of vegetation during the spring and early summer of 1848 and 1849. Mr. Gorrie remarked, that this season had not only lost its comparative earliness, but had fallen very much behind that of last season; the recent frosts, unparalleled so far in the season in this climate, having retarded vegetation very much. This season lost its excess of earliness about the middle of April, when we had some days of

severe winter weather. A comparative table showing the time of flowering of different plants during the two seasons accompanied the communication.

A communication was read from Mr. George Lawson, Edinburgh, on the occurrence of *Nematelia virescens*, a fungus found on the Sidlaw Hills, and new to the Forfarshire flora.

A mounted collection of British and foreign grasses, and other plants, was exhibited as a donation to the Association from D. E. Smith, Esq., Edinburgh. Plants were also received from Mr. Geo. B. Simpson and Mr. W. M. Ogilvie.

Note on Count Suminski's Recent Observations on the Reproduction of Ferns.

THESE observations are so valuable, and place the subject under discussion in so novel and so interesting a light, that we hope shortly to devote several pages to an analysis of the author's remarks: at present this brief note must suffice.

Prior to the publication of Suminski's work our knowledge of the reproduction of ferns may be thus stated. The frond of a fern bears on its back, edge, or elsewhere, certain clusters of somewhat spherical bodies, each supported on a short stalk: these bodies burst by a fissure transverse to their axis, and scatter a quantity of minute particles. The particles falling on the ground, or becoming attached to any moist substance, vegetate and produce a flat, semitransparent, perfectly cellular leaf, much resembling a *Marchantia*, from the upper surface of which a true circinate frond is subsequently developed, and this is rapidly followed by others until the plant has assumed its ordinary appearance, and the *Marchantiiform* leaf has decayed and disappeared. Although called by a variety of very curious and ingenious names, authors are agreed in considering the spherical bodies the representatives of capsules, and the particles which they contain the representatives of seeds.

Suminski, applying the microscope to the upper surface of the *Marchantiiform* leaf while yet in a very young state, has detected certain minute sessile bodies which he considers analogous to the stamens and pistils of flowering plants: the stamens or antheridia are somewhat spherical, and are generally seated near the base or that part of

the leaf where it is attached by minute radical fibres to the soil or substance on which it grows: the author has seen these anther-like bodies burst and emit granules of pollen: beyond the antheridia, and nearer the distal extremity of the leaf, are seated the pistillidia; these are more elongate than the antheridia, are longitudinally quadripartite as though composed of four united styles, and have a fissure at the extremity through which the tube of the pollen-granule enters and fecundates the ovule in the usual manner: the author has actually observed the tube of the pollen-granule within the pistillidium. The ovule, seated in the ovary at the base of the pistillidium, after fecundation is speedily matured, and when ripe germinates *in situ*, the radical fibres passing through the cellular leaf in search of a suitable nidus, and a small circinate frond simultaneously arising from the upper surface. Now supposing these observations to be correct, and we have every reason for believing them to be so, we must no longer regard the clusters on the back of a fern-frond as its fructification, but rather consider the supposed capsule as the analogue of a spathe, and its contained particles as flower-buds, which, falling to the ground, develope and expand into a corolla—the cellular leaf—having its proper stamens and pistils, and its true seed, we must regard as formed in the ovary at the base of the pistil.

The discoveries of Suminski are somewhat corroborated by a fact well known to those who cultivate ferns in the Wardian cases: if the atmosphere be kept thoroughly damp by an abundant supply of water, and a careful exclusion of the arid external air without, clusters of the corollas or Marchantiform cellular leaves will appear on the backs of the fronds, and after a while young plants will be seen arising from the centre of each; a phenomenon precisely analogous to the germination of grains of wheat in a wet autumn while the corn is yet standing.

But the interest of these observations is not confined to their novelty as physiological facts: they must hereafter have an important influence on definitions, methods and systems. Perhaps no hypothesis has been more generally received by scientific men than that which separates plants into sexual and asexual. Now if we review this hypothesis under the light thrown on it by Suminski's discoveries, we shall find that it rests on no more solid foundation than this: that in plants with showy flowers we have observed the sexes, while in those without we have not: we have therefore been contrasting complete with incomplete observations, rather than one ascertained phenomenon with another. The researches before us obviously tend to

abolish the distinctions of sexual and asexual, for all that we can now safely assume with regard to the sexes of mosses, fungi, lichens, or seeds, is not that they are absent, but that they are undiscovered.

K.

Notice of 'The Rhododendrons of Sikkim-Himalaya. By JOSEPH DALTON HOOKER, M.D., &c. With Drawings and Descriptions made on the spot. Edited by Sir W. J. HOOKER, K.H., &c. Second Edition. London: Reeve, Benham and Reeve. 1849.'

ALTHOUGH our journal is for the most part confined to notices of subjects connected solely with British Botany, yet we feel assured our subscribers will peruse with interest the following extract from a splendid work, the title of which we have given above. Dr. Hooker has in an almost incredibly short space of time reached the Himalaya range from Calcutta, and in the course of his explorations of some of the recesses of those stupendous mountains discovered a number of new plants. In the plates to the magnificent work before us, are depicted ten new species of *Rhododendron*, met with in what may truly be termed "the head-quarters of the genus in the Old World." This locality and the plants seen in company with the *Rhododendrons* are thus described:—

"It was on the ascent of Tonglo, a mountain on the Nepalese frontier, that I beheld the *Rhododendrons* in all their magnificence and luxuriance. At 7,000 feet, where the woods were still dense and sub-tropical, mingling with ferns, Pothos, peppers and figs, the ground was strewn with the large lily-like flowers of *Rhododendron Dalhousiæ*, dropping from the epiphytal plants on the enormous oaks overhead, and mixed with the egg-like flowers of a new *Magnoliaceous* tree, which fall before expanding, and diffuse a powerful aromatic odour, more strong, but far less sweet, than that of the *Rhododendron*. So conspicuous were these two blossoms, that my rude guide called out,—'Here are lilies and eggs, sir, growing out of the ground!' No bad comparison. Passing the region of tree-ferns, walnut and chestnut, yet still in that of the alder, birch, large-leaved oak (whose leaves are often eighteen inches long), we enter that of the broad-spathed *Arum* (which raises a crested head like that of the *Cobra de Capel*), the *Kadsura*, *Stauntonia*, *Convallaria*, and many *Rosaceæ*. The paths are here much steeper, carried along narrow ridges or over

broken masses of rock, which are scaled by the aid of interwoven roots of trees. On these rocks grow Hymenophylla, a few Orchideæ, Begonia, Cyrtandraceæ, Aroideæ of curious forms; the anomalous genus Streptolirion of Edgeworth, and various Cryptogamia; and the Rhododendron arboreum is first met with, its branches often loaded with pendulous mosses and lichens, especially Usnea and Borrera. Along the flat ridges, towards the top, the yew appears, with scattered trees of Rhododendron argenteum, succeeded by R. Campbelliæ. At the very summit, the majority of the wood consists of this last species, amongst which, and next in abundance, occurs the R. barbatum, with here and there, especially on the eastern slopes, R. Falconeri. Mingled with these are Pyri, Pruni, maples, barberries, and Azaleas, Olea, Ilex, Limonia, Hydrangea, several Caprifoliaceæ, Gaultheria, and Andromeda; the apple and the rose are most abundant. Stauntonia, with its glorious racemes of purple flowers, creeps over all; so do Kadsura and Ochna; whilst a currant, with erect racemes, grows epiphytally on Rhododendron and on Pyrus.

“The habits of the Rhododendrons differ considerably, and, confined as I was to one favourable spot by a deluge of rain, I had ample time to observe four of them. R. Campbelliæ, the only one in full flower early in May, is the most prevalent, the ropes of my tent spanning an area between three of them. Some were a mass of scarlet blossom, displaying a sylvan scene of the most gorgeous description. Mr. Nightingale’s Rhododendron-groves, I thought, may surpass these in form and luxuriance of foliage, or in outline of individual specimens; but for splendour of colour those of the Himalaya can only be compared with the Butea frondosa of the plains. Many of their trunks spread from the centre thirty or forty feet every way, and together form a hemispherical mass, often forty yards across, and from twenty to fifty feet in height! The stems and branches of these aged trees, gnarled and rugged, the bark dark-coloured, and clothed with spongy moss, often bend down and touch the ground: the foliage is, moreover, scanty, dark green, and far from graceful; so that, notwithstanding the gorgeous colouring of the blossoms, the trees, when out of flower, like the Fuchsias of Cape Horn, are the gloomy denizens of a most gloomy region.”—p. 13.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 609).

Lathræa Squamaria. In moist shady places, woods, copses, groves and shrubberies, at the roots of hazel and other trees, and on the trailing stems of ivy amongst decaying leaves. In various parts of the Isle of Wight, in some of its stations or in certain years, very plentiful, but not generally common in the island. Under the shrubs on the terraces at North Court, Shorwell; Rev. James Penfold!!! Plentiful, and I believe annually so, in this station. In the shrubbery at Swainston, Miss Simeon, who pointed it out to me growing in great plenty at the foot of Portugal laurels (*Prunus lusitanica*), in June, 1840. In several of the woods about Swainston, 1846. In very great abundance in Long Copse, Apes Down; Miss Dennett!! Little Standen Wood, near Newport, and not uncommon in the island; Mr. George Kirkpatrick. In 1846 I found it scattered, though rather sparingly, over Bloodstone Copse, near Ashe, at the roots of hazel, and fully in flower, March 8th (an extraordinary mild and forward season); and on the 15th of the same month I detected it in great abundance in the adjoining Eagle Head Copse, revealed by the septennial clearing of the *rice* or brushwood; some of the flowers even then beginning to go off. Exposure to the sun and wind proved fatal to this vegetable recluse, as a week or two afterwards not a plant was to be seen alive. Dr. Salter and myself have fallen in with solitary specimens in other parts of the island occasionally. Longwood (near Winton); Rev. Messrs. Garnier and Poulter in Hamp. Repos. This is the only station I can at present record for mainland Hants, where it is probably not more rare than in the Isle of Wight, but appearing at a time of year when few collectors of "wild flowers" are on the look-out, and haunting chiefly the thickest shades and innermost recesses of the woods, it escapes notice oftener than most of our native plants, having besides but little to attract attention from the mass of observers with whom beauty or fragrance are the chief claims to regard. *L. Clandestina* (*Clandestina rectiflora*, *Lam.*), which ranges to the north-west departments of France, may eventually prove to be an inhabitant of our southern and western counties. This plant was inadvertently omitted at the close of the *Orobanchaceæ* in the last portion sent to press of these Notes.

Digitalis purpurea. In dry hilly or heathy pastures, woods, hedges, and on banks, by road-sides &c.; common in many parts of the Isle of Wight on the greensand and freshwater formation; seldom, if ever, to be seen on the chalk. Frequent about Ryde in various places, but usually of small growth in this neighbourhood, which is on stiff clay. Extremely common in most of the sandy districts of the island, as about Shanklin, where, at Apse Castle, one part in particular of that picturesque spot is profusely adorned with this gorgeous plant, which there rises to a height of six and seven feet, displaying one dense spike of blossoms for two-thirds of that length or upwards.* Most abundant and luxuriant on the light soil of Bordwood Copse, and on the sand and gravel about Newport. In the Undercliff, about Cowes, Newchurch, Godshell and numberless other places, in plenty.† Var. β . Flowers white. Here and there by accident, but very rarely. About Steephill; Mr. Albert Hambrough. A specimen or two found by myself on the Wilderness, in 1842. The Foxglove is of abundant and universal distribution over the whole of Hants, excepting, as before remarked, on calcareous soils, but from which I am not quite sure that it is wholly banished. A variety with flowers of a flesh colour, streaked with white, grows sparingly in a hedge betwixt Brown Down and the Grange farm, near Alverstoke,—one specimen of which, picked on the 14th of June last, presented some very singular anomalies of structure, and in a morphological point of view was as enigmatical as it was interesting. The specimen first arrested my attention by the above deviation in colour from the ordinary state of the species, and by the peculiarity of the lobes of the corolla, which were remarkably developed and regular, the upper lobe especially, as large or larger than the lower one (not, as is commonly the case, much shorter and truncate or nearly obsolete), the mouth of the corolla scarcely at all oblique, and the entire flower looking very like that of some species of *Bignonia*. In place of the field of areolate spots which usually occupy the throat and superior part of the lower lobe of the corolla, there was in this specimen a large irregular blotch, of a blood-red colour, adding much to the strangeness and exotic aspect of the flower; but the most singular feature of the case escaped my observation, till my return home in the evening, when, looking at the specimen by

* In the highlands of Scotland I have seen the Foxglove still taller, and in Devonshire I measured a stem which was nine feet high.

† Mr. Thomson, a writer in *Loudon's Magazine*, vol. iii. (1830) p. 418, strangely asserts that "of this beautiful but noxious flower the Isle of Wight scarcely boasts a single specimen!"

candlelight, I discovered that all the expanded flowers in the spike (and they were many) bore spurs as in several genera belonging to the natural order we are now considering. There was, however, this difference between them, that whereas the calcarate plants of the order are contented, with Butler's renowned knight, to wear but one spur, and that too, like him, on the heel,* our eccentric foxglove preferred following the fashion of modern cavaliers in sporting a pair, although in a position where spurs were never worn till now. Each corolla carried one of these appendages on either side, about the middle of its length, and somewhat below the medial line of its depth or vertical section—in other words, towards, but not actually on its under surface, the situation of these processes precisely corresponding in all the flowers, but in the higher unopened buds no trace of a spur was visible, this organ appearing to be developed during their expansion, as it might be traced faintly in some of the lower, larger and more forward buds, and be seen increasing in size and distinctness as the flowers successively acquired magnitude in proportion to their distance from the termination of the spike. These spurs did not exceed a quarter of an inch in length, were straight, hollow, rather obtuse than acute, and pointed backwards, closely resembling in size and structure those of *Linaria repens*. On what morphological principles can the production of these spurs in so anomalous a part of the corolla be explained? Dr. Lindley notices the tendency in the flowers of *Scrophulariaceæ* to form pouches or spurs,† but in all cases, so far as I am aware, these hollows are definite in their situation, the corolla being either gibbous and calcarate at base beneath the tube or annular margin of insertion on the perigynous disk, or produced at its anterior extremity into foveate or vaulted concavities, forming the ringent or personate corolla. If this curious example of spurred corollas produced on a plant which does not naturally bear such, is to be regarded as an evidence of the *nixus* alluded to by Lindley, is it not remarkable that the tendency should betray itself in a manner so abnormal as in the case before us? The Foxglove is often called, here and in other parts of the south, Poppy (in Devonshire, Flopp Poppy), perhaps from the smell of the flowers, which is like that of

* "For Hudibras wore but one spur,
As wisely knowing, could he stir
To active trot one side of 's horse,
The other would not hang—of course."

HUDIBRAS, *Canto I.* (amended edition).

† 'The Vegetable Kingdom,' p. 683.

the true corn-poppy, vulgarly called here redweed. A yellow fox-glove has been reported to me (I think by Miss Griffith of Torquay, though not on her own authority) as having been found at Apse Castle, near Shanklin. I have never met with anything of the kind there, but should not be surprised to hear that the *Digitalis lutea*, if that be the plant intended, were to be discovered in England, since it abounds in the north of France, and is, I believe, common in the neighbourhood of Rouen and other places in Normandy. It is abundantly naturalized in a thicket just outside of Mr. Borrer's garden at Henfield, and our south-eastern counties of Kent, Sussex and Hants are exactly those in which there is the greatest probability of its occurrence.

† *Antirrhinum majus*. On walls, rocks and old buildings in and about towns, and contiguous to, or not far remote from gardens, from which it has in every instance escaped, at least in this island, and probably in all other parts of the kingdom. On several walls at Ryde, Newport, Cowes, Yarmouth &c. On rocks behind the houses at Ventnor. Frequent on walls and ruins in most parts of the county, Petersfield, Winchester &c. In its truly wild state, as I have seen it on the stony *garrigues* at Castlenau, near Montpellier, the flowers are white, with a slight tinge of sulphur-yellow or flesh-red; and of this primitive colour I have gathered them on calcareous rocks at Cat-down Quarry, near Plymouth, where the great Snapdragon looked more like an indigenous production than I have ever seen it do elsewhere in this country.

———— *Orontium*. In waste and cultivated ground, amongst corn, turnips, potatoes &c., on light sandy, gravelly or chalky (rarely on clayey) soils; not very uncommon in the Isle of Wight, being pretty generally, though mostly sparingly distributed over it. Here and there about Ryde, but rarely. Pretty frequent in turnip-fields near Gurnet farm in the autumn. Near St. Helen's. Steephill; Mr. Albert Hambrough! Fields between Lake and Sandown, and between Week farm and St. Lawrence; Mr. W. D. Snooke. Garden ground at Shanklin and Godshill, and in various other places occasionally, but usually very sporadic. About equally frequent, I presume, on mainland Hants. In sandy fields and garden ground at Short Heath and Oakhanger, near Selborne, September, 1848. Field at Clay Hall, between Haslar and Alverstoke, near Gosport. Plentiful in a turnip-field near Hasted, in the parish of Hursley (near Winchester); Mr. Wm. Whale! Heron Court; Mr. Curtis in litt. and icon in Brit. Entom. viii. t. 337. I have gathered it in this island with white flowers occasionally.

‡*Linaria Cymbalaria*. Introduced, but now completely naturalized on old, moist or rough walls (rarely on hedgebanks) throughout the county and Isle of Wight; very frequent. On the ruins of Quarr Abbey, Binstead, but sparingly. Abundantly on old walls about Knighton Manor. Walls at Shorwell, Cowes, Ventnor, Newport &c. On stone fences at St. Lawrence, and about the Orchard (Sir Wiloughby Gordon's), plentifully. It has established itself on a stony declivity at Bank End, Undercliff, just beyond the farm towards St. Lawrence. Profusely on old walls at Winchester. At Petersfield, Southampton, Botley &c. Wallington, near Fareham; Mr. W. L. Notcutt. Now dispersed over the greater part of central and southern Europe, and profusely bedecking the venerable walls of our ancient towns in the south of England with its mantling tresses of purple, and deep shining green, but apparently rare till within a comparatively recent period. Mr. Borrer I believe remembers when it was almost unknown in Sussex, and was himself instrumental in aiding its dissemination in that county; and the writer of these remarks has several times heard it related as a family tradition, that a near relative of his own, long since deceased, who was much devoted to her garden and greenhouse, received a pot of *Cymbalaria*, as it was then called, from the late Sir Joseph Banks as a welcome botanical present. From Sir James Smith's account of this plant in his 'English Flora' and in 'English Botany,' one would be led to infer that our public botanic gardens were the original *puncta salientia* from whence it had spread itself over the land, and few persons seem aware of its having been known in England long prior to the existence of these institutions amongst us. It is distinctly named and described both by Gerarde and Parkinson in 1636 and 1640, who give very tolerable figures of it, the former especially (Ger. em. p. 529, fig. 6), who says it "growes wilde upon walls in Italy, but in gardens with us." Parkinson's woodcut ('Theatrum Botanicum,' p. 682,—*Cymbalaria hederacea*) is much inferior to Gerarde's, but his account is more circumstantial, for he tells us "It groweth naturally in divers places of our land, although formerly it hath not beene knowne to bee but in gardens, as about Hatfield in Hartfordshire, both in their gardens and other places that are shadie upon the ground, for there it will alwayes best like to grow, as also upon thatched houses in the north parts, as I am given to understand, and most abundantly in Lancashire and in my garden, where it runneth up from the ground on the wall a pretty height." Smith, who uniformly cites the figures of both these authors, seems to have overlooked them in this instance, and it

is remarkable that Ray in his great work the '*Historia Plantarum*' (vol. i. p. 759), though referring to the two old herbalists, is silent on the subject of the *Cymbalaria* as native to or naturalized in Britain, but mentions it as abounding on damp walls and rocks in Italy, and on the walls of Bâle in Switzerland.* In the '*Synopsis*,' however, his editor, Dillenius, gives it on the faith of that accurate observer Dr. Richardson, as found everywhere in quarries (in fodinis) at Darford, in Yorkshire (Syn. p. 282). From these facts it is clear that *Linaria Cymbalaria* has been known in England from an indefinitely remote period, but continued of comparatively rare occurrence till the general diffusion amongst all ranks for a taste for gardening, which marked the latter part of the last and the whole of the present century. I have never seen this species in Italy, or elsewhere in the south of Europe, but on walls and buildings as with us, and in Holland on the brick-work along the canal banks and bridges, so that it seems as much at home here as in any country on the continent, and would probably never wholly disappear from our soil, should our cities and towns share the fate of those of antiquity and crumble into ruins. From its creeping far and wide, by root and seed, it has gained in this island the name of Roving Jenny or Roving Sailor, and in America is known, I find, partially at least, as Kenilworth Ivy, perhaps from its

* Many plants locally abundant in our times, and most likely in theirs, escaped the notice of Ray and his contemporaries, but which omissions do not, I think, go far to prove such species to have been since imported and naturalized, because the same thing is continually happening in these days of Argus-eyed research, that plants are suddenly discovered in places where they must have pre-existed perhaps for centuries, as *Erica ciliaris*, whilst others have been lost sight of and again detected in their original or new localities, as *Isnardia palustris*, *Euphorbia pilosa*, *Bupleurum falcatum*, *Cyclamen hederæfolium*, *Bunium Bulbocastanum* and many more. Our surprise at the large number of plants added to our flora during the last 60 or 80 years will diminish when we reflect under what disadvantages the earlier botanists of this country laboured in their endeavours to explore its vegetable productions, from the tediousness, expence and inconveniences of travelling, the very limited diffusion amongst the people of scientific tastes or acquirements, and the consequent want of co-operation felt by the few exceptions to the general ignorance and apathy of the age. Add to these, the obstacles to epistolary correspondence from the slowness and uncertainty of the post, the high rates of postage, and the want of a clear, definite, universal language and nomenclature for conveying scientific truths and discoveries between the initiated. The perusal of the works of the old herbalists who lived in the sixteenth and seventeenth centuries yet show incontestably their acquaintance with many a plant, shrouded by uncouth names and barbarous descriptive phraseology, which it is supposed the reformed nomenclature of Linnæus, good roads, railways and the penny postage have each in their time and turn enabled us moderns to discover.

prevalence on the walls of that castle which the muse of Scott has rendered familiar to all the world.

Linaria Elatine. In waste and cultivated ground, gardens, tillage fields, on hedge and ditch-banks, sometimes in wet boggy places and woods; common almost everywhere throughout the county and Isle of Wight. Plentiful on the eocene or freshwater formation, as well as on the chalk; less frequent perhaps on the greensand than on the two preceding deposits. Our corn-stubbles and fallows are often covered with this and the next species at the close of summer. Besides many other points of difference betwixt the present and the following species, may be mentioned that the peduncles of *L. Elatine* are much more slender than in *L. spuria*, not hairy as in that, excepting slightly so near both ends, and when in flower diverge from the stem nearly at a right angle, being for the most part finally reflexed as the capsules approach maturity. The peloria condition with regular three, four or five-spurred flowers I have found both in this and *L. spuria* in chalky fields at Twyford, near Winton.

——— *spuria.* In precisely similar stations with the last over the county and island, but of rather less frequent occurrence in general, being more, though not exclusively attached to calcareous soils, and seldom straying beyond the limits of cultivation. Frequent about Ryde, Sandown &c. Very common in Undercliff. Often as abundant as the last in stubble-fields in autumn, either taking its place or growing in company with it. Flower-stalks much stouter than in *L. Elatine*, hairy all over like the stem, and spreading from the latter at a moderate angle only, never, I think, reflexed in seed. I have often wondered that these two species of *Linaria* have not been brought into cultivation to ornament windows and halls, as they equal several of our greenhouse creepers in elegance, and the flowers, though not showy, are pleasing from the singularity of form and combination of colours (yellow and rich purple-brown) they display. The foliage too is not devoid of elegance, and the innumerable slender stems, which in the wild state not unfrequently attain to three or four feet in length, hang gracefully over the vase that contains them. As the more delicate plant, *L. Elatine* would be preferred by many, whilst *L. spuria* would come recommended to others by its greater robustness of growth, more conspicuous flowers, and larger size of its round velvety leaves. For further remarks on these two species and their geographical distribution see 'Phytologist' i. p. 168. It is worthy of notice here, that commonly as these plants are found growing together, and closely as they are allied in habit and character, I have never

observed any tendency in them to produce hybrids, although, as we shall see presently, mules occur between species of this genus less nearly connected botanically, and brought into less intimate contact with one another.

Linaria minor. In dry gravelly, sandy or chalky corn-fields and other tillage lands, in waste and garden ground, chalkpits, on old walls, cliffs and rubbish here and there, not unfrequent, and often abundantly. By no means rare in the Isle of Wight, though it cannot be deemed a common species here or on the mainland of Hants. About Ryde occasionally, on the Dover &c. I find it most abundantly (and I have reason to believe it to be so every year) in fields below Gatehouse farm, and in great quantity in a field a little south of Beanacre, in the same vicinity. On débris of the chalk-marl cliffs in Whitecliff Bay. Chalkpits near Newport. Fields about Pallance and elsewhere near West Cowes. In the Undercliff, also near Calbourne, Shalfleet, Thorness Bay, and various other places in the island, generally dispersed, sporadically or socially, over its entire area. Of equal frequency on the mainland of the county. Bordean Hill, West Meon, Alverstoke. Plentiful amongst turnips on Portsdown Hill, near and below the Nelson memorial, Oct. 1848. Bedenham &c.; Mr. W. L. Notcutt. Winton, Pink's Hill, Warnford; Rev. E. M. Sladen. Andover; Mr. Wm. Whale. Crux, Easton, Aug. 1849.

—— *repens.* In hedges, on banks and dry barren ground. Quite rare in the Isle of Wight, where it is confined to a few localities in West Medina. In several stations about West Cowes rather plentifully, more particularly in hedges about Broadfield farm, in various places pretty abundantly. Debborne Turnpike; Miss G. E. Kilderbee. Near Yarmouth; Rev. W. T. Bree in litt. (very sparingly in that neighbourhood !!!) "Lane between Thorley Street and Bouldner, and I believe elsewhere in that parish;" Mrs. Penfold !!! A few plants by the road-side betwixt Bouldner and Luckets; W. A. B. About a quarter of a mile beyond Stapler's Heath going from Newport to Ryde, along the side of the road, sparingly,—the only station in East Medina that I know of for this plant, which seems wholly restricted to the north-western side of the island, near the coast line. Much more plentiful in mainland Hants, but principally towards the sea. Abundant on the wide flat shores of Stoke's Bay in various parts. Everywhere plentiful in the hedges and borders of the corn-fields betwixt Gosport and Alverstoke, along the road from Haslar Hospital to Clayhall and Anglesey, and beyond this latter place westward towards Brown Down. On Southampton Common abundantly; Mr.

Wm. Pamplin in New Bot. Guide. Marchwood, Mr. Borrer, and on Shirley Common, both near Southton. Hursley, near Winton; Miss L. Legge! I understand it grows also at Beaulieu in West Hants, and doubtless in other parts of the county. An extremely variable plant in the size and colour of its flowers and their markings, as well as in the length and degree of obtuseness of the spur. The blue or purple striæ vary much in number and intensity, being sometimes very faint and almost obsolete, and wholly or partially wanting on the lower lip; at other times the entire corolla is strongly pencilled with broad deep purple or azure lines, so as to appear altogether of that colour. A variety with the flowers pure white and destitute of striæ I find in a field-hedge at Clayhall, near Gosport, Sept. 1848, and July, 1849, but very sparingly. This form has, I think, been noticed at Coniston in Westmoreland, by Mr. Borrer. Another and more remarkable state of the plant is a hybrid production between it and *L. vulgaris*, erroneously, as I feel assured, referred to *L. italica* of Treviranus, and *L. genistifolia* of De Candolle, by Babington (Man. 2nd edit. p. 232), and previously to *L. Bauhinii* of Gaudin, in the 'London Journal of Botany' (vol. i. p. 79), by Mr. H. C. Watson, who, I believe, is now sensible of his error in so doing.* I first noticed the plant some few years back, growing in extremely small quantity, in the hedge by the road-side within a mile of West Cowes, on the way to Newport, and again in a lane close by the same station (called, I believe, Love Lane) leading from the said high-road towards the windmill: in both places *L. repens* and *vulgaris* were growing in the vicinity of the mule plant. I again fell in with this hybrid September 1, 1848, in some degree of comparative plenty, along the hedge-banks by the road from Gosport to Clayhall and Alverstoke, a few hundred yards from Haslar Hospital, on the right-hand side of the road coming from Gosport. Here, as at Cowes, the two parent species will be found flourishing near each other, and in quantity vastly exceeding their spurious offspring. What is evidently the same thing has been found at Shirley, near Southampton, by Mr. Watson, in the county of Cork, and near Penryn, Cornwall,—places all three well known to produce *L. repens*, and it may fairly be presumed *L. vulgaris* also. The very aspect and characters of the plant,

* In reply to a communication in which I expressed my conviction of this being a hybrid, Mr. Watson writes:—"Your hybrid *Linaria* is in all likelihood the same as my *L. Bauhinii*; and if hybrid, we should expect some differences, as in fact do exist in the Cornish, Hants, Cork and Swiss specimens."

without this strongly corroborative fact, stamp it unequivocally for a mule production, in which the features, sometimes of the one parent, sometimes of the other, predominate. The *L. stricta* of Hornemann I take to be our hybrid in one of its smaller-flowered phases, such as I occasionally meet with at Gosport, and in which *L. repens* is dominant over the commoner progenitor. This is referred by Koch* and Bentham† to *L. repens* as a variety of that plant, but the concise description of the former author, given below, coincides better with our English mule than the figure of Reichenbach, which is more highly coloured in the yellow portion of the flower, and less distinctly striated in the upper lip than any specimens from this quarter at least, besides that the lobes of both lips are in that figure represented as acute, whilst in our plant they are remarkably rounded and obtuse as in the type.

A degree of fragrance is ascribed to the flowers of *L. repens*, which has been noticed by the earlier botanists as well as by those of our own day, but beyond a certain herbaceous odour I could never perceive any sweetness in the blossoms, even with a large bundle of the plant before me for drawing up a description from, although a single specimen has, from another party ignorant of the fact, elicited expressions of pleasure and surprise at the grateful smell diffused by it.

N.B.—*L. purpurea* is to be seen occasionally on wall-tops and waste ground, escaped from gardens, in several places of the island. I have found it in such situations at Bonchurch and Yarmouth, and on the sandy spit at Norton, Freshwater, but too sparingly to be admitted with propriety to denizenship in our Flora. Being a native of central and southern Italy it is not likely to gain a permanent footing in this country, but *L. supina*, lately added to the British Flora, may not unreasonably be looked for along the southern coast, as it is truly indigenous on the opposite shores of France (I think at Cherbourg), and abounds about Rouen and elsewhere in Normandy. The Cornish stations lately discovered are in all likelihood really natural habitats.

Linaria vulgaris. Everywhere common in hedges, borders of fields, waste ground and by road-sides, particularly in light sandy

* Röhling's 'Deutschlands Flora,' iv. s. 402. Eine andere Abart (*L. striata*) hat bleichgelbliche Blüten mit einer violett gestreiften Oberlippe. Diese ist die oben angeführte *Linaria stricta*, Hornem. Haf. 2, p. 577 Reichenb. Ic. v. p. 14 (tab. 423). See also Gadron, 'Flore de Lorraine,' iii. p. 146, *L. striata* β . *grandiflora*.

† In De Cand. Prodr. x. Scrophular. p. 278, Bentham distinctly says that the *L. italica* of England is a hybrid between *L. vulgaris* and *L. stricta* (probably a misprint for *striata*, that is *L. repens*), which has always been my own opinion.

soils. Var. β . *Peloria*. Very rare in the Isle of Wight, nor have I any notice of its occurrence on the mainland of Hants. A single specimen in the marshy meadows betwixt Newchurch and Alverston, facing a cottage called Burnt House, Oct. 4, 1842. Some of the flowers with five, others with six spurs. I found some plants between Morton House and Alverston bearing a few flowers with cleft spurs; in one flower there were two spurs each so divided, but no multiplication of any other part of the corolla. Var. γ . Corolla milk-white, palate deep orange. In a field-hedge betwixt Werror farm and the high-road from Newport to Cowes, Aug. 9, 1839. Betwixt Cockleton and Gurnet Bay. A very handsome variety from the shining, milky-whiteness of the corolla and the deep orange of the palate. The spur is a little longer and more attenuated than in the ordinary state of the plant. Mr. Borrer has seen the same variety in Sussex, but the brilliant white cannot be prevented from changing to a yellow in the process of drying. Var. δ . Palate very pale-yellow, almost white. Not uncommon in the Isle of Wight generally, and perhaps hardly deserving notice as a form. Royal Heath &c. Var. ϵ . *latifolia*. Leaves much broader, flowers larger, on glabrous pedicels. Under the wooded shore a little west of Ryde, towards Binstead, Aug. 1845 (an *L. speciosa*, *Ten.*). A very remarkable variety, if not a distinct species, though I can find no good character to separate it from *L. vulgaris* excepting proportion of parts. Leaves much broader than in that, narrowly lanceolate, the floral ones often quite lanceolate, more rigid and spreading, and very glaucous. Flowers nearly twice as large as in *L. vulgaris*, approaching to those of *L. dalmatica* in size, and like them of a citron rather than sulphur-yellow, very handsome, forming a few-flowered, lax or distant raceme, not crowded and imbricated as in *L. vulgaris*, on longer, less erect, glabrous pedicels, the spur longer, straighter, more attenuated and very acute, directed perpendicularly downwards. Capsules not above half the size of those of *L. vulgaris*, mostly shorter than the calyx, sometimes as long or a very little longer.* Seeds smaller and very similar to those of *L. vulgaris*, but the tubercles in the centre larger, more prominent and irregular. The only species to which I can refer our plant is the *L. speciosa* of Tenore, since it corresponds pretty exactly with the short description of this latter by Bertoloni (*Fl. Ital.* vi. p. 370), for Tenore's own figure I have not the means of consulting. The plant is

* The capsules in this genus are extremely liable to vary in size and configuration in the same species, as we see them do in *Euphrasia*.

limited to a spot of a few yards in extent, growing amongst brambles, ragweed, &c., and though in moderate quantity, may possibly not be truly indigenous. But if Mr. Bentham is right in referring, as he does without scruple, Tenore's plant to *L. vulgaris* as a variety of the latter,* I see no reason why it may not be equally wild with us as in Italy. Mr. Watson justly remarks to me that *L. vulgaris* varies greatly in the breadth of the leaves and the size of the flowers, though he had not met with these parts so large and broad as in the specimen I sent him last year. He now has it under cultivation from seeds I transmitted to him, whilst I failed in my attempts to raise plants in the garden, both from seed and roots. Our plant agrees in many particulars with Bertoloni's description of *L. speciosa*, but not in all. The pedicels in my specimens are not longer than the bracts, nor the spur shorter than the corolla; the former are here fully equalling or surpassing the flower-stalks in length, and the slightly recurved spurs are mostly about as long as the fully expanded corolla.

Scrophularia nodosa. In damp, shady or sometimes dry places, woods, thickets, hedges, moist pastures, banks of streams, &c.; very frequent over the whole county and Isle of Wight. The *S. marilandica* of Linnæus, common in the United States, does not differ in any respect from our European *nodosa*, and is now very properly conjoined with the latter by most botanists.

————— *aquatica*. Still more common than the preceding species, and to be found abundantly along almost every ditch, pond and stream, and in every wet hedge, thicket and marshy spot, here and on the mainland. Obs. *S. Ehrharti* will in all probability turn up within our floral limits, since it has been found in the neighbouring county of Sussex and other parts of the south, although apparently more frequent in the north of England, replacing in some degree our *S. aquatica*, which is there uncommon. This very distinct species, in our time first recognized as British by Mr. C. A. Stevens, and most faithfully delineated in the 'Supplement to English Botany,' tab. 2875, is, I think, unmistakeably pointed out in Ray's 'Synopsis' (Dillenian edition, p. 283) as follows:—"*Scrophularia major, caulibus, foliis et floribus viridibus*. D. Bobart. Figwort with green leaves and flowers. Found near Cumner. Common Figwort is called Brownwort from its remarkable brown colour. This hath nothing of Brownness in it." This account, short as it is, well describes *S. Ehrharti*, even then considered by Ray as a distinct species (his No. 4).

* De Cand. Prod. Pars. x. Scrophulariaceæ, auctore G. Bentham, p. 273.

S. vernalis will probably prove to be a native of Hampshire, as it occurs in Surrey, and according to an anonymous catalogue flora of the neighbourhood of Newbury* in my possession, is common about Bucklebury and Marlestone in Berkshire. *Limosella aquatica* though not hitherto detected, so far as I am aware, in Hants, cannot I conceive be really a stranger to our county, awaiting only the keen and practised eye of an experienced botanist to draw it from the obscurity of its native mud.

Melampyrum cristatum. In dry woods, thickets and copses, especially such as have been recently cut, and on chalk, sometimes amongst corn, rare, and, as it would seem, uncertain or periodical in its appearance. Not found in the Isle of Wight. By Netley Abbey; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Discovered about twenty years ago most abundantly in woods between Clanfield and East Meon, by Mr. W. Pamplin. In consequence of an unsuccessful search for this beautiful and conspicuous plant by myself in 1847, Mr. Pamplin most kindly met me last summer at Petersfield, where we explored the woods in question with no better result, the weather, too, being most unfavourable for a sylvan ramble. Since then, an observation in the excellent 'Flora of Hertfordshire' by Messrs. Webb and Coleman, has suggested to us the probable cause of our failure, in the fact that this, like many other annuals, may and does vanish for many successive seasons, till circumstances favourable to the germination of the dormant seeds call it again into existence. Mr. Pamplin's botanical accuracy is unimpeached, and having been lately "smitten friendly" by Mr. Lees for a want of faith in the visual accuracy of others, I gladly embrace the opportunity now afforded me of avowing my hearty concurrence in the justice of his remarks, supported, as they are, by the very curious instances he

* 'A Catalogue of Plants found in the neighbourhood of Newbury,' 1839, 8vo.,—a pamphlet of thirty-one pages, which includes several Hampshire stations for plants therein mentioned, as Newbury, the centre of the district examined, is only about two miles from the border of this county. The list on the whole appears worthy of credit, although such announcements as that of *Polycarpon tetraphyllum* "in waste places at Hampstead Norris" and two other stations; of *Illecebrum verticillatum* as "common in waste places and by road-sides at Blewbury, and throughout the Vale;" of *Lepidium latifolium* in "peat-pits about Newbury;" of *Cnicus heterophyllus* (*C. pratensis* no doubt) on Woodhay and Cold Ash commons, and of *Habenaria alba* on Lid's bank, Blewbury," &c., coming barely within the range of possibility, but very wide of the bounds of probability, do not tend to strengthen our confidence in the correctness of the remaining stations, most of which I see no great reason to doubt of on the score of unlikelihood.

has brought forward in his paper (Phytol. for May last) of vegetable periodicity.

‡? *Melampyrum arvense*. Parasitical (?) Amongst corn, and on the grassy borders of corn-fields and banks contiguous to them in the Isle of Wight, but very local, being entirely confined to its extreme south and south-east side, and generally thought to have been introduced with seed-wheat from other parts of England or from the continent. Most profusely in corn-fields (chiefly amongst wheat) above the Undercliff, from Bonchurch westward nearly to Niton, extending backwards or inland to Whitwell, but scarcely, I think, higher up the valley than that village. The district principally infested with this gaudy but most pernicious weed, is a nearly equilateral triangle, of which Whitwell forms the apex, and Niton and St. Lawrence the two basal angles; for though it has encroached on the land to the eastward nearly as far as Bonchurch, the quantity there is limited, and the injury it occasions comparatively trifling. I find it also in the Pelham Woods, growing amongst grass and other herbage, and on the rocks and slopes that overhang them, but only in that part of these beautiful woods immediately underneath the beetling crags that form the great mural boundary of the Undercliff, and whither I suppose the seeds to have been conveyed by the winds or by birds from the corn-fields just above and behind them. Yet it is remarkable that the poverty-weed, as it is here called, never descends into and infests the corn-fields that occupy so large a part of the valley or terrace known as the Undercliff, to which its introduction would seem to be inevitable, as one can hardly conceive the belt of wood at the base of the cliff to be any barrier to its encroachments, but keeps entirely to the high grounds, and I believe never occurs off the chalk or chalk-marl, unless, as just mentioned, its appearance on the ledges of the gale or firestone be held an exception. There seems good reason to put faith in the tradition current here, that the purple cow-wheat was introduced to the island at no very distant period, although I cannot find any person who pretends to remember when it was even scarce in their neighbourhood. It was first noticed, I am told, on the Dean and Ash farms by Whitwell, where the wheat and barley have ever since been sadly overrun with it, and the crops greatly deteriorated thereby. In 1838 I found it plentifully in corn-fields at the west end of Ventnor, and creeping on at the back of that village (since risen to the dignity of a town) very nearly to Bonchurch. It behoves the farmers of West Medina (the greater corn-growing hundred of the two) to be on their guard against its introduction into their chalky soils,

already too prolific in cereal nuisances of various kinds. From Mr. Borrer I learn that this gaudy pest is reported to have been brought in with corn from Jersey, which is very improbable, seeing that the purple cow-wheat is not mentioned as a native of that island in Babington's '*Primitiæ Floræ Sarnicæ*,' nor have I ever remarked it there myself. From Mr. George Kirkpatrick, of Newport, I understand it is rumoured to have been conveyed hither in seed-wheat from Norfolk, whilst according to others it was imported from Spain. As this species abounds in a few of the middle and eastern parts of England, and especially in Norfolk, I am most inclined to believe we are indebted to that county for the unwelcome present, nor, except in this island, am I acquainted with any stations for *Melampyrum arvense* south and west of London. The name of poverty-weed, inapplicable as it may appear to so showy a plant, bears reference, I presume, to an opinion that it exhausts or impoverishes the soil, or indirectly, perhaps, alluding to a similar effect on the pocket of the farmer, the produce of whose fields is rendered less marketable from the blue colour imparted to the wheat flour contaminated by an admixture with the seeds, from which it is scarcely possible to free the grain by winnowing, as the specific gravity of both is pretty nearly the same. Withering remarks that although the seeds of *M. arvense* give a bitterness and discoloration to the bread, they do not make it unwholesome, but the contrary opinion prevails here amongst our country people, who attribute decidedly injurious effects to bread so adulterated, which a poor woman described to me as "tasting sharp in the mouth." The flavour of the fresh seeds I find to be hot, bitter and disagreeable. A respectable middle-aged man, named Rabbett, a shoemaker, who resided for many years at Whitwell, and now keeps the new toll-gate at Shanklin, tells me that when employed with others harvesting on Week farm, they used to pull up the poverty-weed with the greatest care, and carry it off the fields in bags and burn it, picking up the seeds from the ground wherever they were found lying. Of late years he thinks the bread from the Dean and Week farms is not so dark coloured and "hot" as it used to be, and that the plant is less plentiful than formerly. He remarks that the *Melampyrum* often makes its appearance in clover and grass, and comes up plentifully when the land is left in lay, at which time it might be eradicated without injury to any crop. He gives the same account as others of its introduction to the island with seed-wheat, but does not know from whence this "droll" weed is supposed to have come to us, which was before his recollection. I am quite persuaded that negligent farming

is alone to blame for the predominance of this troublesome plant at the back of the island, and that like the far less injurious *Orobanche minor*, it might be kept under, if not wholly eradicated with but little labour or expence. At present, the poverty-weed is permitted to grow up and ripen its seeds with the grain, which they thus contaminate; much is left to flower and seed on the stubbles after harvest, and is ploughed in to lie dormant till the land is again sown with wheat, and thus a perpetuation of the evil is ensured. The *Melampyrum* is up and coming into flower before the wheat is in ear, and with a little practice might easily be distinguished in a yet earlier state, when it could be weeded out by hand with facility; women or children being engaged for the task, the cost would be moderate, and not worth considering as a set off against the benefit obtained.* A specimen of this plant with the flowers white was found by Miss Hadfield near Ventnor! Many plants of this natural order (*Scrophulariaceæ*), as *Melampyrum*, *Pedicularis*, *Bartsia*, *Rhinanthus* and *Gerardia*, that turn black in drying, can hardly be made to grow by artificial culture, though from the beauty of most of these genera, it would be desirable to have them common in gardens. Decaisne I think it is, who asserts that these plants, like the *Orobanchaceæ*, are parasitic on the roots of other vegetables, and explains the difficulty experienced in their cultivation by a knowledge of this curious fact. I have several times sown the seeds of *M. arvense*, but though they come up freely at first, few of the seedlings attain to a flowering state, and such as do blossom look weakly and die off without maturing seed in their turn. It has once or twice appeared spontaneously in the garden at St. John's, near Ryde, amongst the flower borders, but has uniformly disappeared in a year or two in spite of every care taken to leave it undisturbed. Of its parasitism I have hitherto been unable to assure myself, and there is nothing in the structure of its roots different from other annuals to favour Decaisne's assertion. When the seeds of *M. arvense* begin to germinate, the radicle elongating, elevates the yet entire seed considerably above the surface of the soil,

* I understand from my friend Capt. Love, R.N., of Yarmouth, I. W., who had the information from Mr. Jolliffe of the Dean farm, that sheep are partial to the purple cow-wheat, and as the seeds are not all matured before the crop is off the ground, by folding the animals on the stubbles as soon as the corn is carried, the land might in some degree be freed from this pernicious annual. The expedient, it is obvious, must be very partial in its operation, whilst careful weeding would ultimately effect a complete cure of the evil.

after which the testa bursts by the eruption of the plumule, and the young plant thus appears as if vegetating in the air.

Melampyrum pratense. In dry woods, groves and thickets, abundantly over the whole of the county and Isle of Wight. Var. β . latifolium. Leaves (the uppermost especially) more or less inclined to ovate or ovate-lanceolate. Probably not unfrequent. Plentifully in New Copse, near Wootton Bridge, May 24th, 1846. Picked at Apse Castle, near Shanklin, in May, 1843, but only a solitary plant. Woods at Clanfield near Petersfield, common, July, 1848, and plentifully in a wood near Appleshaw, June 26th, 1848, but exhibiting here, as in most of the above-mentioned places, all gradations between this and the ordinary narrow-leaved form of the species. Near Boarhunt, July, 1848. In these specimens the uppermost or floral leaves are very deeply pinnatisected or pectinato-dentate below, and cordate, ovate or rounded at base. I presume our plant to be the var. γ . latifolium of the Manual, and identical with that found by Mr. Borrer in woods on the Wye. If so, it is apparently a frequent form in Hants, and I have gathered the same plentifully on Ross Island, Killarney, in 1842. It must, however, be looked upon as a casual deviation only from the normal state, and not as a well-defined and permanent race or variety. In Sweden this species is found in meadows, not as with us in woods, and hence the epithet of *pratensis* given it by Linnæus was not so inappropriate as it appears to more southern botanists.

Pedicularis palustris. In spongy, turfy, or peaty bogs, wet meadows and thickets, also in ditches, pools, and field-drains. In many parts of the Isle of Wight, but not very general. In Sandown Level, and abundant in the marsh at Easton Freshwater Gate. In several parts of the valley of the Medina south of Newport, as on Rookley Moors and deep bogs about the Wilderness, &c. Near Calbourn, Carisbrook, Shorwell, and elsewhere, not unfrequent. On Apse Heath I have found it with white flowers. Common, I believe, in mainland Hants. Wet meadows below Winton. Boggy parts of Titchfield Common in plenty. Bog betwixt Lymington and Brockenhurst. Warnford; Rev. E. M. Sladen.

Pedicularis sylvatica. In exactly similar places with the last, but also on moist heaths, damp pastures and moors too dry for *P. palustris*; extremely common throughout the Isle of Wight, and I believe the county at large. With white or flesh-coloured flowers I find it under the cliffs betwixt Sandown and Shanklin, 1842. About Bridge by Godshell, Rookley, &c., not unfrequent, May, 1845. These are

the only two species, I believe, of this eminently alpine genus that inhabit the low grounds at the sea level throughout Europe.

Rhinanthus Crista-galli. In usually damp, but often in the driest meadows and pastures; likewise on boggy ground and wet heaths and commons; most universal and abundant. Plentiful, even on the driest and warmest chalk hills, but of small size, and with the stem mostly quite simple. Very large, bushy and much branched from the base on peat bogs on Colwell Heath, Freshwater, and which I supposed might be *R. major*, but it does not accord with that species. Another form, with very slender, perfectly simple stems, and smaller flowers than ordinary, I found plentifully last summer in woods near Clanfield, whilst searching for *Melampyrum cristatum*. Is this the *R. minor* of authors? Much confusion attends the discrimination of the different species of *Rhinanthus*, that have been split off I suspect very unnaturally from one most variable plant, the common yellow rattle of our fields and pastures. In this island the yellow rattle is called fiddle-cases, without doubt from the shape of the inflated calyx like the case of a violin.

Eufragia (Bartsia) viscosa. In damp places, meadows, pastures, and by road-sides, as yet only in the south-western part of the country (in and near the New Forest and towards the coast); very rare? At Hythe, near Southampton; Dr. G. A. Martin! Near Christchurch; Mr. J. Hussey in litt. Roadside betwixt Lymington and Exbury; Mr. J. S. Mill. Never found by me in the Isle of Wight, but it seems to have occurred here in times past, from the following passage in Ray's Synopsis (Dillenian edition) Indic. Plant. Dub. at the end of vol. ii.: "*Cratæogonum cubitalis altitudinis, flore luteo.*" In the Isle of Wight; Mr. Cole: and in the King's meadows at Godstone, in Surrey. (*Forte Euphrasia major lutea latifolia palustris R. Syn. (Eufragia viscosa).*) I think there can be little doubt of our present species being intended by the above cumbersome phrase, as Dillenius also supposes, though it is possible the tall bog form of *Rhinanthus Crista-galli*, lately alluded to, might have been in the writer's mind, and the Godstone station seems an unlikely one for a plant so western and maritime as the *Eufragia viscosa*. No part of the county is theoretically more likely to produce this species than the Isle of Wight, and we may confidently hope to fall in with it ere long, most probably on the north-western side of the island, between Cowes and Yarmouth; it must, nevertheless, if found at all, be very rare here, since it has eluded my observation for these twelve years past. Yet the same thing has happened with *Habenaria viridis*, an

unquestionable Isle-of-Wight plant, of which I have more than once received Vectian examples, yet could never light upon it myself; indeed, it has never greeted my eyes in any part of England, although by no means a very uncommon *Orchis* in most quarters of the kingdom. *Eufragia viscosa* abounds in the adjoining county of Dorset, about Poole, the flora of which has a decidedly western character, and to the eastward it has been found in Sussex, at Bexhill, probably its extreme limit in that direction. In Ireland I found it on deep spongy bogs in the counties of Cork and Kerry. Grisebach's name of *Eufragia* is objectionable, as too close in sound to *Euphrasia*.

Euphrasia officinalis. In meadows, pastures, woods, and on dry heaths, &c., abundant everywhere.

——— *Odontites*. Universally plentiful in pastures, woods, waste places, borders of fields, by way sides, amongst corn, &c., whether dry or moist. Var. β . Flowers white. Near Ryde; Mr. Wm. Wilson Saunders. A specimen with the flowers remarkably distant was gathered some years back by Captain Beckford, R.N., I believe near Cowes!

N. B. — *Sibthorpia europæa* should be looked out for in damp, shady, boggy places along the margins of rivulets, since, though quite a western plant, its range extends eastward into Sussex, where I gathered fine specimens some years ago on the only known station for it in that county, by a boggy stream on Waldron Down, near Uckfield.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
August 6, 1849.

(To be continued.)

Who knows Viola canina? By HEWETT C. WATSON, Esq.

WHO KNOWS VIOLA CANINA? To this question, three years ago, every English botanist might have answered, unhesitatingly, "EVERYBODY;" meaning, thereby, himself and all other the botanophilists of Britain. And yet, gentle readers of the 'Phytologist,' who are collectors of English specimens, forty-nine in fifty of you had then in your herbaria, and likely enough is it that nine in ten of you still have there, a plant so labelled which is not thus designated by the leading continental botanists, and which (I much fear) is destined shortly to lose that familiar name in England.

Why so? Because we have in this country a small group of botanists, industrious and talented, and united in their efforts, who have so thoroughly habituated themselves to study English plants through foreign books and foreign labels, that they would now prefer adopting a continental error, rather than they would adhere to an English accuracy which is incompatible with the error. "*Viola canina*" thus becomes a dog with a bad name, and will be forced to forego that name which it has held for two centuries and upwards, with the universal consent and acceptance of British botanists. The fiat has gone forth, that the Dog's Violet must cease to be "*canina*," and is to become "*sylvatica*."

Whither must the discarded name go? If thus taken from the species to which it originally and legitimately belonged, it were better suppressed altogether, as the most likely course to avoid confusion and cross-naming in future. Instead of this safer course, it is proposed to restrict the name of "*canina*" to a different species, hitherto unfamiliar to British botanists; overlooked by many of them, confused with the Dog's Violet by several, and otherwise labelled by the rest. The *Viola flavicornis* of Smith (or, at any rate, the species to which that dwarf form belongs) is henceforth to become our *Viola canina*, as it long has been the *V. canina* (more or less confused with the species originally so named) of many continental botanists.

Every collector of botanical specimens in England is acquainted with the scentless violet which grows so copiously on hedge-banks, in and about woods, on the borders of fields and commons; producing cordate leaves, usually smaller than those of the sweet violet, and flowers of a lighter or more lilac tint. It was to this common and familiar species that our early botanical writers applied the name of *canina*; and in this application of the name they have been followed by subsequent authors, up to the date of the *second* edition of Babinpton's 'Manual of British Botany;' although, in this latter work, the change of name from "*canina*" to "*sylvatica*" has been partially made; that is to say, the larger forms of the former have been separated, and described under the latter name, by the author of the Manual. He has, however, left the smaller forms of the old *V. canina* still under that name, conglomerated with some forms of a different species, the *V. flavicornis* of Smith.

It appears to me a fact beyond question, that the *Viola "canina sylvestris"* of Gerard (Em.) was a name intended to distinguish the scentless "wild or Dog's Violet" from the sweet violet; the name being expressly applied to a common sylvan species which was found

"ad sepes et in dumetis passim." (See Raii Syn, edition 2, p. 214, anno 1696). Afterwards, in the third edition of the same work, 1724, Dillenius mentioned and figured another plant, as "a variety of *Viola canina*, if not a different species, observed by Du Bois, and much smaller than the common plant in all its parts." The small variety, or different species, was a Surrey violet, stated to have been found in pastures near Mitcham. This, the only locality recorded by Dillenius, is not without some value as evidence in the question of specific names.

We may pass over the intermediate authors on British Botany, by a long leap to the 'English Flora' of Smith, published just one hundred years after Dillenius had published the third edition of Ray. Smith's work became, as is well known, a standard authority for subsequent writers to follow and copy from, for the last quarter of a century. Here we find Gerarde's identical *Viola canina sylvestris* still designated *Viola canina* by Smith, under the belief that Linnæus had likewise so designated it; while the Dillenian small variety or different species is described under the name of *Viola flavicornis*. Besides these two, Smith still kept up his own *V. lactea*, as a third species, distinct from both the others.

Since the death of Smith, very few of the writers on British botany seem to have clearly understood and distinguished his three species, individual forms or varieties of one species having often been referred to another of them. Dwarf forms of *V. canina* (Smith) have thus been referred to *V. flavicornis*; and examples of the latter, in its turn, have been supposed to represent *V. lactea*. And, again, in changing the name of Gerarde's species, from *V. canina* into *V. sylvatica*, the latter name has unfortunately not been applied to the common species in its totality, but only to its more luxuriant forms. This unfortunately partial change and application is proved, among other evidences, by the author of the Manual (the work in which the change is made) indicating *his* *V. canina* to be "common," and *his* *V. sylvatica* only questionably "common?" But the *V. canina* of Gerarde and Smith (the *V. sylvatica* of various continental authors) is a hundred times more common in England, than is the other species (the *V. canina* of continental authors) figured by Dillenius, and described by Smith, from small examples, under name of *V. flavicornis*.

Through the mis-references of particular forms to the wrong species, and the partial change of name above mentioned, the present application of "*Viola canina*" is becoming very vague; and the use of the name is too likely to confuse the ideas of readers and writers,

because it will represent different species, or different combinations of forms, according to the individual who employs it as a name. I propose therefore to substitute in this paper three other names for the three species, such as ought not to confuse any clear-headed reader, and which I will apply comprehensively as designations of the respective species, not restrictedly to special forms or states of luxuriance. The question, whether the second and third are truly and permanently distinct species, may be waived for the present. The three apparent species, each including subordinate varieties, are these :—

1. Gerarde's Violet = *Viola canina*, of Gerarde, Smith, &c.
2. Dillenius' Violet = *Viola flavicornis*, of Smith, in E. F.
3. Smith's Violet = *Viola lactea*, of Smith, in E. F.

The authors of all our general floras of Britain, and probably those of all our local floras, up to the date of Babington's Manual, in 1843, applied the name of "*Viola canina*" to Gerarde's Violet. If including either of the two other species under the same name, as varieties, Gerarde's Violet was still their type of *V. canina*. I have myself, as above intimated, no doubt whatever that Mr. Babington's typical idea of "*Viola canina*" was still a form of the same species (Gerarde's Violet) even to the publication of the second edition of the Manual, in 1847. This has been lately denied by Mr. F. J. A. Hort, among some good remarks on the violets, published in the 'Botanical Gazette.' But the internal evidence afforded by the Manual, in connexion with other publications of the same author, is amply sufficient to bear out the opinion which I thus express. It is highly probable that Mr. C. C. Babington may have seen cause to alter and correct his views of these three violets *since* he printed the second edition of the Manual; and therefore I would be here understood to refer to his views as the author of 1843 and 1847, and not to any *modified* opinions of the individual botanist of 1849, which he has not yet announced publicly, so far as I know, although they may have been communicated to Mr. Hort.

If, then, all English botanists have intended Gerarde's Violet, under name of *V. canina*, why ask any question, or make any difficulty about it? Because continental authorities are applying the same name to a different species, and a different name to the same species; and because influential English botanists are now proposing to follow their example. The grounds for this change and transfer of

name are, that Linnæus intended Dillenius' Violet, rather than Gerarde's Violet, under his own application of the specific name "*canina*." The fact seems to be, that Linnæus included both species under the single name; a large form of Dillenius' Violet, and (apparently) a small form of Gerarde's Violet, being preserved as examples of *V. canina* in his herbarium, three specimens of each. The Linnean *Viola canina* is thus a group of two species, or perhaps more; and in subdividing this group into its proper and particular species, it would surely have been the better course to restrict the old name of "*canina*" to Gerarde's Violet, as the species originally intended by it; instead of dissevering it entirely from the original species, and giving it to that different species which had been distinguished from Gerarde's Violet, by Dillenius, so early as 1724. It is reasonable to suppose that, in adopting the old name, Linnæus intended to continue it to the old species. He may have written the character of his *V. canina* from a specimen of one of the other species, "lumped" under that name; but, if so, this was simply an error on his part, in describing the wrong species of the group as the true *V. canina*.

The question now before us is, are we to adhere to the nomenclature of Smith and other English botanists, who have followed the "better course"?—or, are we to seek future uniformity of nomenclature by adopting the new application of the names, as proposed by Fries and many other continental botanists? There may be no great objection against taking up the name of "*sylvatica*," instead of "*canina*;" for the former would in future be applied more precisely than the latter to Gerarde's Violet. But there is a strong objection to be urged against transferring the name of "*canina*" to Dillenius' Violet; because in all past English books it means a different species, and will continue to do so in many future books, lists, &c. For instance, henceforth, when we see "*Viola canina*" in a list of plants, how are we to know whether this name intends Gerarde's Violet or Dillenius' Violet?—the original *V. canina* or the substituted *V. canina*?

In the course of the years 1848-9 I have been many times asked for specimens of *Viola*, and many have been sent to me, with questions about the species and names. And through the obliging aid of Mr. Borrer, this year, in giving me plants of *V. lactea* and *V. Ruppii*, which I had not before known in a living state, my collection of the British forms under cultivation is now nearly complete. Some account of the three species may therefore not be useless or out of place here.

1. *Gerarde's Violet* is readily distinguished from the other two, by its short, upright, central stem; from which the flowering branches are produced laterally, and extended almost horizontally, though ascending towards their extremities. On luxuriant plants, in damp and shaded situations, these flowering branches are occasionally a foot and upwards in length; but they are annual only, and die back to the main stem in winters of ordinary severity. The leaves are thin and flexible, broadly cordate; the upper more or less attenuating into a point; the lower occasionally cordate-reniform. The flowers are lilac-purple, varying into very pale lilac. The green colour of the plant has a yellower cast than in the other species. The capsules are longer in proportion to their breadth, but too variable to afford a safe character. This is undoubtedly the *V. canina* of Smith, and is the species figured in 'English Botany,' 620. The figure would have been quite characteristic, though curtailed, if the artist had not omitted the two or three leaves which should have appeared from between the stipules which are represented as terminating the central stem. A very small form of the same species, my "dwarf violet," is given in the 'Supplement to English Botany,' 2736, as the *Viola flavicornis* of Smith, on the authority of the late Mr. E. Forster. This was an error, as I have already shown in the 'Phytologist,' ii. 1018. To *Gerarde's Violet* must be referred the *V. canina* of Babington's Manual, first edition, with the first and second varieties, *sylvatica* and *pusilla*, but not the other varieties. In its large form, it is the *Viola sylvatica* of the second edition of the Manual; and in its ordinary and dwarf forms, it is inextricably confused with the *V. canina* and variety *pusilla* of the same work, as shown by the references to the figures of 'English Botany;' though the description is misapplied, and does not belong to the same species as the figures which are referred to.

2. *Dillenius' Violet* is known from the preceding species by the want of the short central and sterile stem. The flowering branches are produced by repeated subdivisions of the stem itself, and are not lateral growths from it. Though partially dying back in winter, these branches are perennial at their bases, and the plant thus acquires something of the habit of a very dwarf shrub. The leaves are thick and rather rigid, variable in shape, with a cordate base, mostly inclining to ovate, if small or early, and to triangular-ovate, if large or produced later. The flowers are blue, or bluish purple, varying through very pale blue into whitish. The prevailing colour of the leaves and whole plant is a dark grayish or bluish green. In its dwarf form, this

is the *V. flavicornis* of Smith's herbarium. In its intermediate form it is the "Surrey Violet," several times mentioned in the 'Phytologist.' In a larger form it becomes the *V. Ruppil*, judging by Mr. Borrer's garden plant so named. And I presume it to be the two varieties, *montana* and *Ruppil*, of Babington's *Viola canina*. It has not been figured in 'English Botany;' the dwarf form of Gerarde's violet having been there erroneously substituted for the dwarf form of the present species, as above intimated. The early flowering state, and the later seeding state of the "Surrey Violet," might readily be mistaken for different species.

3. *Smith's Violet* closely resembles Dillenius' violet, particularly in its smaller forms. It is to be distinguished by its narrower leaves, inclining to lanceolate, though variable in form; and they are rarely, if ever, cordate at the base. The flowers are paler. The capsule is proportionally shorter and blunter. But I do not feel myself yet sufficiently acquainted with the range of variation in this species to speak confidently of its distinctive characters. It is figured in 'English Botany,' 445; and the living plant from Mr. Borrer's garden corresponds pretty well with that figure; but in my own garden its flowers have hitherto been apetalous, and the plant remains small, being as yet kept in a small flower-pot. I am indebted to the Rev. W. A. Leighton for a dried specimen from his garden, taken from a Sussex plant of *V. lactea*, given to him by Mr. Borrer, and which has expanded to thrice the size, and appears to form a connecting link from *V. lactea* to *V. stagnina*. Several of the localities recorded for *V. lactea* either produce both this and the preceding species, or else belong properly to Dillenius' violet. These three species vary much in luxuriance, and their varieties have been described under different names. The following list may aid in showing their nomenclature:—

I. GERARDE'S VIOLET = *V. canina* of Smith, Hooker, &c.

1. (Luxuriant) = *V. sylvatica* of Bab. Man. ed. 2.
2. (Ordinary) = *V. canina* of Eng. Bot. 620; rather large.
3. (Dwarf) = *V. flavicornis* of Eng. Bot. Sup. 2736.

II. DILLENII'S VIOLET = *V. canina* of Bab. Man. (in part).

1. (Luxuriant) = *V. Ruppil* of Mr. Borrer's garden.
2. (Ordinary) = *V. canina*, *var. montana*, of Bab. Man.
3. (Dwarf) = *V. flavicornis* of Smith's herbarium.

III. SMITH'S VIOLET.

1. (Luxuriant) = "V. montana, *var. stricta*" (Cyb. Brit. 170)
2. (Ordinary) = V. lactea of Mr. Borrer's garden.
3. (Small) = V. lactea of Eng. Bot. 445.

I have a very fine violet from Mr. Borrer, under name of "montana," which closely resembles V. elatior or V. persicifolia, and appears to be distinct from the three above mentioned; but I do not know whether it was of English origin, or not so.

HEWETT C. WATSON.

Thames Ditton, August 15, 1849.

P. S. (August 18th).—Mr. Hartman, an excellent Swedish botanist at present in London, son of Dr. Hartman, the author of the 'Scandinaviens Flora,' has this day intimated to me his opinion that the small specimens of "Viola canina" in the Linnean herbarium belong to V. arenaria, rather than to V. sylvatica. But whether this be the case or not, there can be no doubt that the plant now designated "V. sylvatica" formed part of the aggregate or group of species, to which Linnæus applied the name of "canina." H. C. W.

Botanical Appointments in the Queen's Colleges, Ireland.

SOME three years ago various candidates were spoken of as offering themselves for the Chairs of Botany (since united with Natural History) in the three new Queen's Colleges, Ireland. It is now reported that the appointments have been at length made, and that Dr. Dickie, Mr. Hincks, and Dr. Melville are to be the Professors. The selection of Dr. Dickie is highly creditable to the Board; the papers which he has already published on botanical subjects, being such as to place him in an elevated and honorable position among scientific naturalists; and giving promise, we trust, of much valuable exertion yet to be made by him for the promotion of science. Though Mr. Hincks and Dr. Melville are less known as contributors to the advancement of science, we have no reason to question the suitability of the appointments in their cases. One of the candidates, Mr. G. H. K. Thwaites, had retired from the field of competition, by accepting an appointment to the garden at Ceylon, as successor of Mr.

Gardner, where his talents will find ample scope. And Mr. H. C. Watson had some time ago withdrawn his application for one of the Chairs in Ireland; otherwise, there is reason to suppose he would have been nominated by the Board of Queen's Colleges.

C.

New Locality for Hypericum linariifolium.

By F. H. GOULDING, Esq.

WILL you have the kindness to inform the members of the London Botanical Society through the pages of the 'Phytologist' of another habitat for *Hypericum linariifolium* (*Vahl*) besides the one I communicated to them some time since, which was by the side of a hedge, ascending a hill from Blakstone to Maristowe, near the river Tavy, Devon? It is now to be found plentifully about the Morwell Rocks, river Tamar. I collected several specimens there yesterday, together with *Asplenium lanceolatum*, and *Orobanche major*, and proceeded to search for the *Physospermum Cornubiense* at the habitat mentioned in Hooker's 'British Flora,' and communicated by the Rev. W. S. Hore. It is now completely eradicated, the wood being metamorphosed into a corn-field.

F. H. GOULDING.

13, Bedford Street, Plymouth.
June 29, 1849.

Note on a few Rare Plants occurring at Kelvedon.

By E. G. VARENNE, Esq.

ONE evening during the last month an agricultural acquaintance of mine brought a plant from Salcot (a parish on the borders of the salt marshes), which he said infested two or three places in one of his fields, as bad as twitch. He seemed pleased with the idea that he should succeed in grubbing it all up. The farm labourers informed him that the weed had been growing in the field for many years past. On examination the plant proved to be *Lepidium Draba*, *Br.*, as described by Hooker and Babington.

Salcot is an Essex locality for several other of our rarer plants.

Lepidium latifolium covers the banks by the road-side, and grows in the meadow land on both sides of the creek.

Trifolium maritimum is found among the grass, in the meadows. *Myriophyllum verticillatum* grows in a ditch near the wharf. *Cynoglossum sylvaticum* is to be met with here, as well as in other parts of the east of the county, but it has nearly disappeared from the station recorded in the 'Botanist's Guide,' between Witham and Kelvedon, only two or three plants remaining, and it can no longer be discovered in Braxted by the way-sides.

A *Potamogeton* with large fruit is common in the salt-water ditches, and agrees with the description in Mr. Babington's book of *Potamogeton pectinatus*, *L.* *Sisymbrium Sophia* is not an uncommon weed at Salcot.

It may be as well to take the present opportunity of recording the habitats of two or three plants of interest in other parts of this county. *Centaurea solstitialis* was found last harvest, at Berechurch, where it was growing in a field amongst the wheat, in tolerable abundance.

Juncus diffusus, *Hoppe*, inhabits Tiptree Heath, where I discovered it in company with my friend Mr. Bentall, two years ago. It also in the park at Rivenhall Place pretty plentifully.

Apera Spica-venti? A grass which was at first taken for *A. Spica-venti*, but which much resembles specimens of *Apera interrupta*, was found last autumn, near the railway station at Mark's Tey.

E. G. VARENNE.

Kelvedon, Essex, July 25, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, August 3, 1849. — John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

'The Journal of the Royal Agricultural Society of England' for July, 1849; presented by the society. 'The Pharmaceutical Journal and Transactions' for August, 1849; presented by the Pharmaceutical Society. 'Twenty Lessons on British Mosses,' by William Gardiner; presented by the author.

Dr. Joseph Dickson, of Jersey, and Miss M. Wilson, of Belfast, were elected corresponding members.

Mr. Jasper W. Rogers brought under the consideration of the meeting the purport of his paper read at the last meeting of the Society, on the 6th of July last, "On the Uses and Properties of Peat

Moss, and the Value of Peat Charcoal as a Disinfectant and Fertilizer." It may be necessary to mention that by the aid of peat charcoal Mr. Rogers purposes to consolidate and deodorize the solid matter of the London sewers, and whilst by that means benefiting the inhabitants of the metropolis, there would be placed within the reach of the agriculturist a manure of the most powerful description—pulverized, free from odour, and fit for transit by any conveyance. In 1845 he brought the subject under the consideration of the public, and it was then alleged that charcoal could not give that quantity of carbon to the root of the plant, the leaf and not the root being the portion which absorbed such sustenance. Often, however, since then he had tried the experiment, and the result had invariably been that the root, as well as the leaf, of the plant attracted the carbon, and therefore he was more convinced of the propriety of the system he had promulgated. From the experiments he had made he had found that peat charcoal possessed far superior advantages to wood charcoal: it had had a deodorizing effect which wood charcoal had not; and if they considered how such an agent could be made to operate upon the sewage matter of London, no one could be left in doubt as to the public benefit. Wherever it had been used it produced the most extraordinary effect. If excreta, in its natural state, was intermixed with charcoal, it at once absorbed and took up all those gases which, if exposed to the atmosphere, were lost. It kept that nutriment until such time as the dryness of the earth surrounding a plant intimated its lack of sustenance, and gave forth its revivifying influence when it was wanted. In short, by the admixture of charcoal with excreta all the gases were at once taken up and retained, ridding the public of nuisance and disease, and giving to the land the entire benefit. Peat charcoal was, perhaps, the greatest absorbant known. It would take up and retain about 80 to 90 per cent. of water, and at least from 90 to 100 volumes of those noxious gases arising from animal excrement and other putrescent matter. Hence its great value for effecting deodorization, and for retaining all the value of the liquid, as well as its volatile products. Equal parts of prepared peat charcoal and excreta would, under almost every circumstance, if properly intermixed, produce a manure of almost incalculable value. The proportion, however, of charcoal might be more or less in some instances, even down to one-third.

Mr. John Bishop, F.R.S., inquired of Mr. Rogers, whether he was not aware that the peat raised from the bogs of Ireland could be

turned into other uses besides that he had pointed out, and in answer to which,

Mr. Rogers said he could not do better than quote the following paragraph from his original paper, read to the Society on the subject: "In its natural state peat moss had several peculiarities. It contains, in different proportions, ammonia, pyro-ligneous acid, tar, &c., and also a very singular production, a 'fatty matter,' which, when purified, closely resembles spermaceti, and makes a very beautiful candle. Mr. Reece has recently patented a process for the extraction of these articles; and I am happy to say, a few energetic Englishmen have not feared to risk both themselves and their fortunes to commence operations on an extensive tract of bog and mineral, in the county of Antrim, where they have coal as well as peat, and they purpose carrying out the production of iron from ore, which is upon the property. Possibly 'Price's Patent Candle' may yet be rivalled by 'Reece's Bog Spermaceti.' To speak seriously, the production is really beautiful, and gives a pure and strong light. The question to be solved, however, is, can it be obtained in sufficient quantity to be profitable? It is found in its natural state, at times, in small quantities collected together, by some peculiar local filtration or perhaps affinity, which draws it from the mass around, to one spot. I have seen a collection of it, a little well, I may say, of six to seven inches in diameter, containing the matter pure, and about the colour of butter. The superstitious tradition of the peasantry is, that the fairies hide it for their use, and hence it is called 'fairy butter.' It is but rarely found in that state, and is then treated with great reverence."

Dr. Cook and Dr. Semple expressed doubts as to the possibility of plants receiving carbon through the root, and quoted Sir Humphrey Davy and Liebig to support their argument.

Those gentlemen were replied to by Dr. Redmond, who contended that Mr. Rogers's chemistry remained untouched by their arguments. By his proposition the plant drew up by its root carbonic acid, which the secretions converted into charcoal.

The Rev. Mr. Stoddart and other members of the Society having expressed themselves in terms favorable to Mr. Rogers's views of the subject,

The Chairman expressed the gratification the Society had experienced from Mr. Rogers bringing the subject before them, and the meeting then adjourned, after passing an unanimous vote of thanks to that gentleman.—*G. E. D.*

urrence of Anacharis Alsinastrum (Udora canadensis) in the Trent, near Burton-on-Trent. By EDWIN BROWN, Esq.

DISCOVERED a few days ago *Anacharis Alsinastrum* growing in profusion in the Trent, near this town; it also grows in the canal in this neighbourhood.

Several years ago I paid considerable attention to the botany of this neighbourhood before entomology engrossed my leisure moments, and I feel convinced this plant did not then grow in our streams, otherwise it would have been discovered before. This fact, taken in connexion with the very recent discovery of the plant in Great Britain, leads one to the conclusion that it is not indigenous. It now forms very large submerged masses in the Trent, of a striking appearance. I have, however, found as yet but few flowers, and those are all the so-called female flowers. Contrary to the experience of Mr. Babington, as given in the 'Annals of Natural History,' every flower I have examined contained three stigmas and only two filaments.

The rapid dispersion of this species throughout the country appears to have an analogous instance in the wonderfully speedy diffusion of the mollusk *Dreissena polymorpha* over the beds of all our rivers and canals.

EDWIN BROWN.

Burton-on-Trent, August 20, 1849.

Notice of 'The Rudiments of Botany; a familiar Introduction to the Study of Plants. By ARTHUR HENFREY, F.L.S., Lecturer on Botany at St. George's Hospital, author of 'Outlines of Structural and Physiological Botany.' With Illustrative Woodcuts.' London: Van Voorst, 1849.

IF there were room for a rudimentary work on botany this unpretending little volume might edge its way into notice, for it is cleverly written, of enticing appearance, and very prettily illustrated. We heartily wish it success, but at the same time we must not abandon the critic's office of criticising where opportunity offers. Mr. Henfrey is evidently a very ardent book-botanist; he reads a great deal, reads very attentively, and understands and applies what he reads: this was very observable in his 'Outlines,' and in noticing that work we bore willing testimony to its excellence, especially in the points to

which we are now alluding. This quality, however, occasionally leads Mr. Henfrey into the solecism of making too much display of knowledge lately acquired : thus he reads, is struck with the beauty of a theory or hypothesis that comes suddenly under his notice : he devours and digests it, and then serves it up to every one who falls in his way. We recollect once telling a little boy the Guy Fawkes legend, greatly to his astonishment ; and we heard him many, many times within the next day or two repeating the mystery to every one he talked to,—children, servants, even graybeards who had seen fifty fifths of November, were informed “ There was once a very wicked man,” &c., &c. Mr. Henfrey is the exact counterpart of this child ; he is delighted with every new acquisition of knowledge, and supposes it as new to others as to himself. After all, this weakness, if it be one, is a pleasing weakness, and but that hypotheses thus implicitly received, and thus constantly intermingled with fact, occasionally obscure what would otherwise be extremely clear and simple, we would not hold up so much as a little finger against it. Now certainly a proof of our allegation must be given ; and although the truth of the allegation has forced itself on us all along, as we read from title-page to colophon, or rather to lion, for the book ends with the effigy of a lion rampant, still there is no salient point to cite as an apt illustration. However, beginning the book again, the first description—that of the flower—offers a sufficient, though perhaps not forcible example of our meaning. It would appear our author has lately found, devoured and digested Dr. Lindley’s striking remarks on Morphology : it will be seen how those remarks are served up for our benefit in the following few lines, which we extract consecutively :—

“ The flowers are composed of a number of different parts, and *as these are considered to be in reality peculiar forms of leaves, like them they are, in the first instance, combined and folded up in buds. A flower-bud is to be compared with the leaf-bud, which afterwards unfolds into a stem bearing leaves. In the flower no internodes are formed between the leaves, and they thus remain grouped in circles or a close spiral. The flower of the Wall-flower presents us with four leaves in the outer circle, and these will be best examined on a bud, as they fall off soon after it opens. These are green, like the true leaves, but are smaller and much changed in their general appearance. They are called sepals, and collectively they form the calyx, or cup of the flower, which is always known from the other parts by being the outermost circle. To the calyx succeeds another circle of four bodies, which still retain in some degree the character of leaves,*

although their brilliant colour here, as in most plants, affords a ready mode of distinction. These bodies are called petals, and the collective name of corolla is applied to them. All the coloured *leafy bodies* within the calyx of the flower are considered to belong to the corolla. The two circles just described are present in the greater number of flowers, but they are not actually necessary for the formation of fertile seeds. They enclose and protect, while young, those bodies especially devoted to the formation of the seed. They are therefore called enveloping organs. Within these enveloping organs, which we may now remove with a penknife, we find, in the first place, six bodies or organs, each of which consists of a little thread-like stalk, bearing at its end a yellow oval mass. These organs, *which are still to be considered as peculiar forms of leaves*, are called stamens; the thread-like stalk is the filament, the mass above, the anther, which, in advanced stages of the flower, will be found to have burst by two splits, displaying two cavities, which previously contained a fine dust, called the pollen, now scattered around. In the centre of the flower appears a green body, *which is found to be constructed of two or four leaves, united at their edges so as to enclose a cavity within.* This green body is called the pistil, when regarded as one piece; and the summit, which is somewhat swollen, is the stigma."—p. 9.

Now, if our readers will kindly take the trouble to read the entire extract, leaving out the italicised passages, which bear only on the ingenious hypothesis of Morphology, and not on the description of the floral envelopes, he will find it much clearer, more intelligible, and more instructive.

With regard to the hypothesis itself, it has some facts very much in its favor; and we have observed in several instances that, the sap being diverted from its course by Aphides, the pistil has assumed a leaf-like appearance; and such abnormal appearances as this have been urged in support of the hypothesis: but those acquainted with gardens, and hedges, and woods, and orchards, and who learn from such things as well as from books, must have observed other phenomena. For instance, a species of *Aphis* infests the roots of *Pyrus japonica* just at the surface of the soil, and the effect of its diverting the sap from its usual course is to cause the root to throw out flower-buds, and brilliant scarlet flowers are frequently thus produced on the root: the morphological hypothesis applied in this case must lead to the conclusion that the root was a flower, and merely assumed the functions of a root for especial purposes; and yet science denies

to the root the power of even bearing a bud. Again, another species of *Aphis* attacks what gardeners call the Midsummer shoots, and these shoots thus attacked, particularly in apple-trees, and very particularly in the Ribstone-pippin, produce flowers in place of leaves, and spread open rosy blooms to the hot suns of July and August: *ergo*, on morphological principles the leaves are normally blossoms, although usually assuming the form and functions of leaves. Now all this does not negative the assertion that the pistil is composed of four leaves, but we think it abundantly shows that such a conclusion is at present conjectural only, and does not take rank with the established facts which are generally supposed to be 'The Rudiments of Botany.'

Again, this really clever book occasionally, we may perhaps say frequently, wants that perspicuity which is so essential in an elementary work. The reader will perhaps observe this sufficiently in the paragraph already cited, but we will take the next, in order to avoid repetition.

"There are other perennial plants which have their stem under ground, and display above ground every summer a new *stalk bearing flowers*, which *again dies* down to the ground in autumn, as, for instance, the Asparagus or the Hop, or *looses its flower-stalk* every year, and produces a tuft of leaves, which live through the winter; as, for instance, the Daisy and the Flag."—p. 21.

In both extracts the italics are our own. Now we have to remark that the word *again* seems unmeaning, because the stalk in question has not died before. Indeed, the student will have great difficulty in deducing any meaning whatever from this obscure paragraph; but the botanist, after two or three perusals, and recurring to his knowledge of the plants mentioned, will perceive the terms *loosing* and *dying* are not intended to be contrasted, but are used to express the same meaning: he will also perceive that Mr. Henfrey, in addition to the provincial, and we think inelegant, word *loosing*, has given a new and incorrect name to the stem of the Asparagus and Hop: he calls it a *stalk bearing flowers*, and then contrasts it with the true flower-stalk of the Daisy and Flag. Again, the leaves of the Daisy and Flag should be distinguished from the others as persistent. Mr. Henfrey knows all this: he is a good structural botanist, and his writings abundantly testify his knowledge; the confusion does not exist in his mind, but in his mode of expression. "Botany, like every science and art, requires that particular names should be applied, in an

exclusive sense, to particular things.”* Had he attended to this rule instead of merely reciting it, he would not have introduced a new and inelegant word for *dying*, or a new and inappropriate term for *stem*.

There is one other subject on which we must say a few words in the way of disapprobation : we allude to the explanation of system being confined exclusively to the Linnean. Without entering into the merits of the two systems, surely the general use of the Jussieuian, demands that in any rudimentary work it should be carefully explained. We grant that Mr. Henfrey has a perfect right to *prefer* or *recommend* either system, but he should *fully instruct beginners in that which is now universally employed*. K.

On the Experiments of raising Primulæ, &c., from Seed.

By the Rev. J. S. HENSLow, M.A., F.L.S., &c.

In running my eye over the ‘Phytologist’ I see the record of sundry experiments with *Primulæ* and *Anagalles*, recalling two old experiments of my own, in which I considered I had obtained *Primula vulgaris* from *Primula veris*, and *Anagallis arvensis* from *Anagallis cærulea*. I have not lost sight of this inquiry since, and may some day have an opportunity of reverting to it. Unless a thought is recorded at the moment it is often not recorded at all, and I wish to say that although *negative* testimony is never entirely worthless, and often very valuable, it cannot be of much weight in comparison with a little *positive* testimony in deciding the question at issue. Thousands and millions of seedlings may and will come *true*, to use a common gardening expression, in most cases where a strong impress of a particular character has been mysteriously imparted to some variety ; and yet a fortunate opportunity may at length arise for establishing the possible, or at least for pointing out the probable, specific identity of plants whose forms are extremely dissimilar. We all know the beautiful blue of the common borage (*Borago officinalis*). It must be five or six years since I observed a white variety in a single plant in a hedge between this village and Ipswich. I brought home a few seeds, and the plants that sprung up have been allowed to seed freely among some currant-bushes in my kitchen-garden, and numerous specimens have since appeared. Every one of them has

* This axiom was first contended for by Mr. Newman (Ent. Mag. i. 395, et seq.)

borne white flowers. Here is an instance, quite as remarkable as that of *Anagallis cærulea* not changing colour in some of the experiments on record. I cannot at this distant period sufficiently recall all the precautions I took in the experiment with the cowslip, and if there really was any "hitch," as a correspondent of the 'Phytologist' has suggested, it may possibly have happened that I selected my seed from such a plant as that which Mr. Watson has called the Claygate oxlip, a variety not uncommon near Cambridge; but I well remember saying to myself whilst I was sowing the seed, "Now if this does change, I will not be persuaded that the result has been obtained from any chance seed in the ground." The *Anagallis* experiment was so perfectly satisfactory, that I cannot possibly admit there could have been any mistake. "But (I have heard it said) there may be two species, one of which bears either red or blue flowers, and the other is true to blue only"! Surely this is rather hypothetical, not to say somewhat trifling with positive results. I cannot at the moment recall the circumstances of the experiment, but I am strongly impressed with the notion that *Anagallis grandiflora* has also been raised from *Anagallis Monelli*, which would be a precisely analogous example. But perhaps there is a "true blue" *Anagallis Monelli*, and a turn-coat also!

It was once proposed that the late Professor Don should have been the medium of communication between a group of botanists who were to interchange seeds, and try what effect might be produced by sowing certain possible varieties of the same species in different and distant localities. But the scheme was never carried into effect, chiefly owing to poor Don's death. Considering the flourishing crop of botanists of all varieties that has arisen since then, perhaps such of your zealous contributors as have sufficient leisure for reviving the attempt, may organize a *Cohors Botanicorum* for this special purpose. Much may be expected from a carefully-conducted series of experiments made with reference to specific identity; and perhaps some ink and no little discussion will be saved in future if an accurate record of the results obtained were to be inserted, from time to time, in the pages of the 'Phytologist.'

J. S. HENSLOW.

Hitcham, Suffolk, September 14, 1849.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 609).

Veronica scutellata. In spongy, turfy bogs, in wet meadows, on damp heaths, and by the sides of pools and ditches. Quite rare in the Isle of Wight. On deep spongy bog with *Vaccinium Oxycoccus* in the valley of the Medina, in meadows betwixt Stroud Green and Cridmore, 1838. Amongst long grass in a swampy pool near Hampstead farm. Edge of a pool on a common called Golden's, in the parish of Freshwater. Apparently not unfrequent in mainland Hants. On Petersfield Heath. Brockenhurst Bridge. On Wolmer Forest. New Forest, in the neighbourhood of Stoney Cross; Mr. J. Hussey in litt. Droxford Forest; Rev. E. M. Sladen.

———— *Anagallis.* In ponds, ditches, slow streams, and muddy, watery spots; more frequent in the Isle of Wight than the last, though not very common. In marsh ditches at Easton, Freshwater Gate, sparingly. On Schoolhouse Green, Freshwater. In the moat at Wolverton, by Shorwell, in plenty. Common in watery places at Brixton or Brightstone. By the mill at Lower Knighton, and elsewhere about Newchurch. Near Carisbrook, St. Lawrence &c. Wet places near Ryde and at Brading; Mr. Wm. Wilson Saunders. Generally diffused, I believe, over the county, where I have remarked it in various places, but have not made memoranda of stations for a plant so common as this is in the south of England. Broad Meadows, Warnford; Rev. E. M. Sladen. Stubbington, Titchfield river; Mr. W. L. Notcutt.

———— *Beccabunga.* In and on the margins of clear shallow brooks, ditches, pools, springheads and muddy plashes; everywhere throughout the county and Isle of Wight, most abundantly. A variety with white flowers I found, May 25, 1848, in a pond betwixt Froxfield and Privet, near Petersfield.

———— *Chamædrys.* In woods, groves, meadows, pastures, hedges, and grassy, shady situations, as orchards &c.; universally over the county and island. Var. β . Leaves all shortly stalked, upper ones ovate-oblong, acute. In the lane or road leading to Haven Street through Firestone Copse, on the hedge-bank a little beyond the farm at Kite Hill; Mr. Thos. Meehan, jun., Oct. 1845! Var. γ . Flowers very pale, almost white. In a lane betwixt Kerne and

Alverstone, growing with the ordinary blue-flowered kind, in some abundance, May 9, 1849. Bird's-eyes is the familiar appellation in the Isle of Wight, and I think in other parts of England, for this common but beautiful flower. The very nearly allied *V. Teucrium* of the continent may, I conceive, be expected with considerable probability to grow wild on this side of the channel.

Veronica montana. In damp shady groves, woods, copses, and on moist hedge-banks, in many parts of the Isle of Wight, but especially in East Medina; abundantly. Very common about Ryde, in Quarr Copse, at Apley, the Priory, &c. Frequent in woods at West Cowes, and very general at Shanklin about the Chine; in Appuldurcombe Park and woods adjacent, in plenty, besides various other parts of East Medina. Less frequent in West Medina, about Newport, at Calbourne, in Lordon Copse near Shorwell, and many other parts of that hundred. Probably frequent over the entire county, but I have myself noticed it only in the great beech-hanger in Chawton Park, near Alton, May, 1848. Chandler's Ford, near Otterbourne, on the Southampton road, but I have forgotten my authority in this instance. A variety of this pretty species with flowers of a delicate rose colour, streaked with purple lines, is not uncommon about Ryde. The close resemblance of the compressed orbicular capsule to the pod of a *Biscutella* might have suggested the name of that genus, as more appropriate for the specific appellation of this *Veronica* than its present alpine one of *montana*, which is far less applicable to our plant than to many others of the genus, since it affects indifferently low as well as elevated situations, both in Britain and on the continent, and is assuredly not a particularly mountain species.

———— *officinalis*. In dry woods, pastures and heathy places, and on hedge-banks, in a sandy, arid soil; frequent throughout the county and Isle of Wight. N.B.—*V. spicata* has been indicated to me as found on St. George's Down, near Newport, in this island, and by Miss A. M. Yonge as growing at Cranbury Park, near Winton, at the edge of the copse, in dry gravelly soil. I have never fallen in with this species in the former station, and think it probable that *V. officinalis* was mistaken for it at Cranbury; yet it is a plant not unlikely to prove a native of our upland districts, and should be sought for accordingly.

———— *serpyllifolia*. Everywhere common in the island and county in open sandy fields, waste places, moist woods, pastures and by road-sides, &c.

———— *arvensis*. Frequent in dry barren or sandy pastures, on

walls, hedge-banks and amongst corn, throughout the county and Isle of Wight. Of extremely diminutive size, often not half an inch in height, on the sandy spit below St. Helens, opposite Bembridge, and which I was once nearly mistaking for *V. verna*. "Between Kingsley and the New Inn near the line of the military road (from Farnham to Petersfield) there is a very remarkable small annual *Veronica*, approaching closely to *V. verna*. It is most abundant in that sandy district, and I wish to call attention to it, as it is, I expect, something out of the common way. It cannot be *V. arvensis*, though at first sight it appears nearest to it." (Mr. Wm. Pamplin in litt.). If not the above dwarf form of *V. arvensis*, or actually *V. verna*, there is a possibility of its proving to be either *V. præcox* or *acinifolia*, both natives of the north of France and of Germany. Circumstances have for two seasons frustrated my intention of going in quest of Mr. Pamplin's plant, which must be looked for early in the year, as it soon dries up in that arid district and disappears for the summer. I hope to be able to do so next spring, and to be rewarded for my trouble with one, if not more, of the three species above mentioned. The neighbourhood of Petersfield is on every side of the town a glorious country for plants, whether we explore its low sandy districts, its bogs, moors, and ancient forest ground of Bere and Wolmer, or, ascending the precipitous chalk range to the northward, dive into the dark recesses of the majestic beech-hangers of Froxfield, where the richly wooded scenery of Stoner Hill and the neighbouring summits, covered to their highest points with luxuriant timber, broken here and there with teeming fields of wheat and barley, stretch in long succession east, west and north, embracing the scarcely less elevated and steep slopes of Bordean Hill, and the bosky hangers of Hartley, Nore Hill and Selborne. So abrupt and strongly defined are the outlines of these chalk hills, and so precipitous their flanks, that we may almost excuse the epithet of "majestic mountains" applied to them by Gilbert White, and repressing the smile inclining to play over our features at this magniloquent phrase, join with him in ascribing to their bold contour somewhat of alpine sublimity. The resemblance in the scenery of Stoner Hill to some of the lower mountain passes in Italy or Switzerland, I have heard remarked upon by persons who had seen both; nor do I think that in this instance their imagination has so far got the better of their judgment as not to have much of truth on the side of the assertion.

Veronica agrestis. Common everywhere in waste and cultivated ground, fallows, on and under walls, banks &c. A somewhat remark-

able variety of this plant has been noticed for some years past by Mr. Albert Hambrough, amongst long grass at Steephill, growing with an upright stem, and bearing a solitary terminal flower on a long peduncle, of a fine blue and nearly as large as the blossom of *V. Chamædrys* !!! A widely-naturalized species abroad, which I have gathered even at New Orleans.

Veronica polita. With the preceding, and perhaps not much less frequent than it over the county and island. The var. *β. grandiflora* of Babington's Manual is probably an analogous form to that alluded to of the foregoing species, but I have never met with it in Hampshire.

†—— *Buxbaumii*. Naturalized in waste ground, cultivated fields, and on hedge-banks in the Isle of Wight; rare, but I believe now well established. First noticed by me in 1844, as a weed, in the garden of a person named Herbert, at the south end of Royal Heath, Sandown, as well as in a field adjacent, and about the former barracks. In 1845 and 1846 I found it in very great profusion on the waste lots of that unlucky speculation yclept East Cowes Park, which not even proximity to royalty can help to colonize. In the ground at Binstead; Mr. Albert Hambrough! I have no station as yet to record for this handsome *Veronica* on the mainland of the county, but can scarcely doubt its occurrence there as a denizen, now pretty generally naturalized throughout Britain.

—— *hederifolia*. In waste and cultivated ground, fields, gardens and on hedge-banks; most abundantly. Our tillage-lands and lay-fields are often covered with the ivy-leaved *Speedwell* in the spring and early summer months.

Mentha rotundifolia. In damp pastures, hedges, wet thickets, and moist places by road-sides, also on the margins of ponds, ditches and streams. Truly wild in several parts of the Isle of Wight, principally in East Medina. In old native pasture-ground in the Undercliff, in various places, very abundantly, as about St. Lawrence, Old Park, Puckaster, &c. Rare about Ryde. At Binstead, sparingly. Hedges near Adgeton, in a field by White House farm, and by the pond in the farm-yard at the Grove. Near Newchurch, and abundantly in meadows near Lower Knighton Mill. Niton Village. By the stream at Bridge and Budbridge. At Brixton, and near Atherfield and elsewhere in the island. Apparently very rare on mainland Hants. Pretty plentifully in a wet hedge at Meonstoke, near the little bridge of the stream on the Corhampton side, Aug. 21, 1849. Road-side near Alton; Mr. E. Forster, jun., in Bot. Guide. These are the only stations known to me in this part of the county, but

further observations will probably show that it is more common there than it appears to be. Well known in the island as Horse Mint, a name applied in the books to the following species. I remarked it abundantly naturalized in the pastures of the mountainous districts of Jamaica, at several of the pens or grazing farms of that island.

Mentha sylvestris. In similar places with the last, but very rare, at least in the Isle of Wight, where it has never occurred to myself. Stated in the 'Botanist's Guide' to have been found here by Mr. S. Woods, but no locality is given. Abundantly at Selborne in the meadow below the church, and along the stream flowing through it, and profusely in a marshy spot at the entrance of the Lith, at the foot of the steep end of Dorton, as likewise at the Priory, in a meadow close to the stream. At Great (Bishop's) Waltham; Mr. E. Forster, jun., in Bot. Guide.

†? — *viridis.* Wet places; very rare in the Isle of Wight, and I fear not truly wild with us. Plentifully along the stream flowing by Lord Yarborough's marine villa at St. Lawrence, all the way to the beach; Rev. G. E. Smith (1839), who, like myself, thinks it may be only an escape from the kitchen-garden higher up, through which the stream runs, and by which it was carried down to the shore. It is, however, now completely naturalized. I have no mainland station for the Spear Mint as yet. The var. β . *crispa*, with curled leaves, I found a few years back growing in considerable plenty on dry banks in Ventnor Cove, with the commoner form—the outcast of some garden.

—— *piperita.* In watery places; very rare. Near Ryde, Isle of Wight; Mr. J. Woods, jun., in Bot. Guide. The locality is unknown to me; nor have I ever been fortunate enough to meet with the Peppermint in a native state in this or any other part of the county.

—— *aquatica.* In wet thickets and hedges, on the banks of streams, ditches, ponds, and in other low watery places; most abundantly. The var. *citrata*, or what I take to be such, I think is not uncommon in the island and county generally.

†? — *sativa.* In damp or watery places; very rare, and scarcely indigenous. Var. β . *rubra*, or perhaps γ . *gentilis*. On a hedge-bank by the road-side between Calbourne and Brixton, probably not indigenous, as I could not find it a year or two subsequently, and there was a kitchen-garden at no great distance from the spot, from whence it might have been derived. Judging from the descriptions, which coincide almost exactly, our Isle-of-Wight plant, is

the *M. gentilis* of Smith and of Leighton's Shropshire Flora. *M. gracilis* of Smith, another and apparently very slight variety of *M. sativa*, and perhaps identical with the forms *rubra* or *gentilis*, is given on the authority of Sole (the *M. pratensis* of that author) as growing in the New Forest.

Mentha arvensis. Very common almost everywhere in moist waste and cultivated places, damp corn-fields, fallows, on ditch-banks and by streams, ponds &c. One of the best marked of the species of this troublesome genus, and in all its forms readily known by its odour, exactly assimilated to that of mouldy cheese.

— *Pulegium*. On moist watery heaths and commons, village greens, and the shallow grassy margins of pools and plashes; very rare in the Isle of Wight. On St. Helen's Green (1838-39), very sparingly, but in certain years it occurs, I am told, more abundantly. By the great pond on Petersfield Heath,—the only Hampshire station known to myself for the Penny-royal, but many others doubtless exist, at least on the mainland portion of the county. Droxford Forest; Rev. E. M. Sladen. Stubbington; Mr. W. L. Notcutt.

Lycopus europæus. In and about the margins of ponds, ditches, rivers and brooks, in wet meadows, pastures and woods; frequent in the Isle of Wight, and I believe over the entire county. Very abundant in the pond near Hardingshoot Farm, where it constitutes great branching, bushy plants, three feet or more in height. Ditches in Sandown Level and on Rookly Moors, but so generally distributed over the island as to render an enumeration of stations unnecessary. It may be found in most of our damp woods and wet places, usually but sparingly, but occasionally in great plenty. Found in most parts of the county which I have visited. In great abundance and very tall by the stream a few hundred yards above the mill at Sheat near Petersfield. Corhampton. About Winchester, &c., &c. Droxford Forest and Exton; Rev. E. M. Sladen. Andover water-meadows; Mr. Wm. Whale. Near Temple, Selborne; Dr. T. B. Salter in Phytol. Place House, Iron Mills, Titchfield Common; Mr. W. L. Notcutt.

Salvia verbenaca. On dry banks and pastures, waste ground and by road-sides; not unfrequent in the county and island, particularly on the chalk. Scarcely found about Ryde; sparingly at Binstead; common at Bonchurch; and plentifully at Ventnor on banks facing the sea, in the Cove, &c., as also along the Undercliff in various places. By Freshwater church and elsewhere in that parish, frequent. Porchester Castle, and common between Porchester and Fareham, 1848. Hinton and Hunston; Rev. E. M. Sladen. Andover; Mr.

Wm. Whale. Hambledon; Rev. Messrs. Garnier and Poulter in Hamps. Repos. In various other places, very generally dispersed.

Var. *β*. Flowers larger, corolla more exserted. Close by the Old Church sea-mark, St. Helen's, some years back, but it has since disappeared.

Salvia pratensis. On dry and especially chalky pastures, banks, and borders of fields; very rare. In an old chalk-pit in Appuldurcombe Park; Miss G. E. Kilderbee! Through the kindness of that lady, to whose exertions in examining the flora of this island and parts of the county adjacent, I have so often had occasion to refer, I possess a single, though indubitable specimen of this very local British native, which, on inquiry, I found had been gathered in the above-mentioned locality by a groom of the late Lord Yarborough, along with some other wild plants, in July, 1838, and forwarded in a fresh state to Miss Kilderbee, at that time resident at West Cowes. I have since sought for it at Appuldurcombe, but in vain. The park is of great extent, and parts of it very sequestered and hilly; unless, therefore, some mistake was made as to locality, I hold the *Salvia* to have been in all probability truly indigenous there. Near Brookwood, West Meon; Rev. E. M. Sladen in litt. I have seen no example from this station, Mr. S. not being in the habit of preserving the plants remarked by him during his residence at Warnford. I can see no reason, however, for assuming an error in this instance, as Mr. S. was acquainted with our commoner species of *Salvia*, and the present is too conspicuous a one to be easily confounded with that or any other of our Labiatae. Moreover, *S. pratensis* has been found plentifully in Oxfordshire by my friend Wm. Wilson Saunders, Esq., and geographical reasons are not opposed to its occurrence as a genuine native of Hampshire, which I trust observations will ere long confirm. I do not know the precise spot in which the Meadow Clary was found by Mr. S., but on a rather hurried visit to the immediate vicinity of the station a year or two back, I saw nothing of it.*

Origanum vulgare. On dry banks and hilly pastures, in rough, stony woods and steep bushy places; in the greatest abundance over the chalk districts of the Isle of Wight and mainland. Profusely throughout the Undercliff, and very fine and abundant on the chalky slopes of the wooded valley near Rowledge. Plentiful, indeed, everywhere on the cretaceous system of Hampshire, as at Selborne, Hambledon, &c., &c., flourishing best in the upland parts of the county.

* Abundant and perfectly wild at Cobham, in Kent.—Ed.

Maindell chalk-pit; Mr. W. L. Notcutt !!! and near the monument (Nelson's ?); *Id.*

Thymus Serpyllum. On dry turfy banks, pastures, and heathy, hilly places, abundantly. On the summit of our highest downs, and very commonly on old mole-hills. Var. β . citriodora. Road-side near the Sandroock spring. This, the lemon-scented thyme, is probably common with us in Hants. Another variety, with very hairy stem and leaves, is not unfrequent, as about Ryde, &c., &c. Dr. Darlington tells us, that within his recollection it was a prevalent vulgar notion in America that the wild thyme sprang up spontaneously in spots where human blood had been spilt by any casualty or violence. Fl. Cest. p. 347. The idea, though revolting, is not without its poetry; but how widely different from the images of peace and repose which the thyme-covered bank suggests to the rural muse in Europe! The common garden thyme (*T. vulgaris*) grows spontaneously and in plenty on a wall-top in Niton village.

Calamintha officinalis. In dry, open, sunny situations, on banks, by road-sides, borders of fields, along hedges, and amongst rocks, chiefly on gravelly or calcareous soils in the low country, never, I think, in the hilly upland districts. In several parts of the Isle of Wight, but very local. Sparingly betwixt Quarr Abbey and Fishbourne, near Quarr House, September, 1837, but I have not seen it there for years. It used to be plentiful in Undercliff, amongst the rocks behind Bonchurch, but the recent buildings have probably much diminished its frequency there. Frequent on hedge-banks betwixt Thorley and Wellond. By the road-side above Apse Heath. Along the road from Carisbrook to Buccombe, and about Carisbrook Castle and village, near the church. A few plants in the park at Swainston. Ruins of Quarr Abbey, near Ryde; Mr. Thomas Meehan, jun.!! In various parts of mainland Hants. Exceedingly abundant betwixt Cosham and Havant, lining the road on the north side for hundreds of yards between Drayton and Farlington, and continuing at intervals almost to Bedhampton. Plentiful within the huge area of Porchester Castle. Hedges near Exton, by Meonstoke, in considerable plenty, August 21st, 1849. Exton road; Rev. E. M. Sladen (probably the same station as the last). Extremely common betwixt Winton and Hursley; Mr. Wm. Whale! Old meadows at Mardon Castle, and in Hursley Park; Miss A. M. Yonge. Southampton road, beyond Titchfield, Mr. W. L. Notcutt; and unquestionably in many other places. *C. Nepeta* is very likely to be found within the limits of the Hampshire Flora, and should be looked for

in the same places with the present. I have gathered it in plenty on the rocks of the Castle Hill, at Hastings.

Calamintha sylvatica. In shady (always upland?) woods and thickets; very rare. Profusely in woods on the western side of a small valley betwixt Apes Down and Rowledge farms, about three miles W.S.W. of Newport, the only station at present known for this plant in Britain !!! For a full account of this species and its characters see Phytol. i. p. 768, ii. p. 49, and E. B. Suppl. iv. t. 2897. The most beautiful of all the British Labiatæ, *Mellitis Melissophyllum* not excepted, but as remarked in the two works just quoted, it requires either the natural shelter of trees and bushes in its native habitats, or artificial protection from wind and other elemental vicissitudes to develop it in perfection. Some of my friends, who, contrary to my advice, have cultivated it in the open border alone, have expressed themselves disappointed in the beauty they were led to expect it would display, and have even thought they could trace its conversion into the common *C. officinalis*, but this is quite an error. Certain it is, that when raised in the open flower-border, the plant, even of the first generation, quickly becomes stunted in all its parts, the flowers shrink to little more than half their usual size, and become much deeper coloured and fewer in number, but in no instance does it lose any of the characters proper to the species, or assume those of *C. officinalis*. I have had it in constant cultivation since 1843, in St. John's garden, near this town, along with *C. officinalis*. The latter thrives luxuriantly in the most exposed part of the garden, as might be expected from its natural predilection for sunny, open exposures, whilst *C. sylvatica* as invariably languishes in proportion as it is removed from the sheltering influence of taller plants or shrubs, thriving at best but tolerably where such partial protection is afforded it. But when grown in pots and treated as an in-door or greenhouse perennial, few exotics of the order are more worthy of the care bestowed on it, as well for the extreme brilliancy of the large, delicately-tinted blossoms, as for the grateful odour of the herbage, like that of peppermint. My friend Dr. Salter has it constantly in his drawing-room window, and is very successful in its treatment, which indeed is very simple, the plant requiring only to be kept out of the wind or currents of air in a moderate temperature, as when thus sheltered the direct influence of the sun seems rather beneficial than injurious to its full development. In this way I have seen it form quite a bush, with long, leafy branches, more than two feet in length, crowded from

bottom to top with its many-flowered, unilateral cymes or clusters into one blooming raceme.*

Calamintha Acinos (*Thymus Acinos*). In dry, open, chalky, gravelly or sandy fields, fallows, and stony, hilly places. In the Isle of Wight, by no means uncommon. Near Ashey and Brading. Between Thorley and Shalcombe. Near Alum Bay. On Kennerley Heath, and in sandy fields about Newchurch, Bordwood and Queenbower. Abundant in very high, chalky fields above Sandown Bay, near the Culver Cliff. Fields near Bembridge Down; Mr. W. W. Saunders. About Carisbrook Castle and near Princelade (Princelet); Mr. W. D. Snooke in Fl. Vect. Frequent, I believe, throughout the county. About Winchester, in fields towards Chilcombe abundantly, and picked with white flowers. I have noticed it in a variety of other places in the county, and believe it to be so generally diffused as to render a list of stations unnecessary. Warnford; Rev. E. M. Sladen. Andover; Mr. Wm. Whale. The white-flowered variety, which I have gathered in the sandy ground below Queenbower, in this island, in some plenty, is a very pretty one, from the purity of the white blossoms, unmixed with any trace of the usual purple spots.

——— *Clinopodium* (*Clinopodium vulgare*). In woods, thickets, and bushy, hilly places, on banks, along hedges and borders of fields on a dry gravelly or calcareous soil; extremely common in most parts of the county and Isle of Wight. Common about Ryde, and abundant throughout the chalk districts both here and on the mainland of Hants. The structure of the corolla is exactly that of *C. sylvatica*, and the habit of the plant very similar. It may be doubted nevertheless, how far it is advisable to "lump" together genera so long recognized as *Calamintha*, *Clinopodium* and *Melissa*, as has been done by Mr. Bentham, or even to keep the two former only united, as we find in the Manual. When we have so extensive and truly natural an order to deal with as the Labiatae, we must be content with very artificial characters in forming the genera, otherwise the latter become unwieldy, and the determination of the species, unless by very exactly drawn up sectional divisions, troublesome and difficult. It were much to be wished that the mania for making new species, so prevalent amongst botanists of the Reichenbach school, could be induced rather to signalize itself in the construction of new genera, the amusement would be much more harmless, and the honour to be

* For a most interesting and faithful account of the habit of this plant and its cultivation by Dr. T. Bell Salter, see 'Phytologist' ii. p. 171.

gained not a whit less great. *Mibi.*, *Nob.*, *Bab.*, or any other contraction significant of individual discriminative or creative acumen, would look just as well after a new genus as appended to a spick and span new species, with quite as fair a chance of surviving the attacks of time and controversy as many of the latter are likely to do in the end. We may tamper, if we please, with genera, which Nature hardly owns as of her appointing, but lightly, without grave consideration and careful experiment, to declare forms distinct which she has not separated by characters of unquestionable permanency, tends only to involve the study of plants in inextricable error and confusion.

‡*Melissa officinalis*. Naturalized occasionally on dry banks and by streams in the county and Isle of Wight. It has been announced to me as growing in Sandy Lane, betwixt Whitecroft and Blackwater, near Newport, but I have failed to find it there. On a bank under a garden wall at Arreton, not a hundred yards from the church. In the wide area of Porchester Castle, in considerable quantity, but noticed in one spot only, apparently a very old station, 1848. Very sparingly by the stream-side below Selborne church, September 17th, 1848. I did not observe it again this year, but was at no pains to look very closely for it amongst the herbage, which perhaps concealed it from view.

Scutellaria galericulata. On the banks of rivers, streams and ditches, the shallow margins of ponds and swampy ground, and in wet woods and thickets. Not very frequent in the Isle of Wight. In various parts of Sandown Level, along the drains or ditches, and by the stream that flows through it towards Brading, called the East Yar; nowhere in any great plenty, but most abundant a little below Howlingford Bridge. Near Rockley farm, sparingly. With stems quite weak and reclining, in a wet copse near Whitefield farm, about what was at one time a pool, called the Swan pond, now dried up. Near Ninham farm, by Ryde. Near Blackwater Mill, above Newport. At West Mill, between Newport and Carisbrook; Miss Dennet (ex icone). Apparently not very common on the mainland of the county. Short Heath, near Selborne. I have found it here and there in other parts of Hants, but have omitted to record the stations, and do not like to quote from memory. Near the Andover Marsh Gate, and in watery meadows at the bottom of Primrose Hill; Mr. Wm. Whale.

——— *minor*. In low, moist, heathy, boggy or muddy places, wet woods, sides of meadow-dains, ditches, and on damp tillage-land; not uncommon in the Isle of Wight, and I believe over the county generally. In Whitfield Wood, near Ryde. Frequent on many parts

of Lake Common. Extremely abundant on Apse Heath, growing even amongst potatoes on newly turned-up land, Oct. 2, 1839. Common about the foot of Bleak Down; around Lashmere Pond,* &c., 1843. In various parts of Sandown Level, and elsewhere in the island. Peaty bogs on Wolmer Forest, and if I remember well on Petersfield Heath. Path leading from Baddesley (from Otterbourne) across the (Cranbury ?) common; Miss A. M. Yonge. Hinton; Rev. E. M. Sladen.

Prunella vulgaris. A common plant everywhere in meadows, pastures, fields and hedges; by road-sides, in heathy ground, woods, thickets and waste places.

Nepeta Cataria. On gravelly and chalky banks, in waste places, along fences, hedges and road-sides, in dry situations; rare in the Isle of Wight, and I think unfrequent in the county generally. A plant or two close to the garden-gate at Truckles, near Ryde; Dr. T. Bell Salter: probably introduced originally !!! At Ventnor, by the Crab and Lobster, very sparingly (Dr. G. A. Martin !!!), and on a heap of stone rubbish a little to the east, below the road near Flint Cottage; Rev. G. E. Smith. Gravel-pit near Calbourne Bottom. Weston farm, Freshwater (a few plants just within the fence by the road-side); Mr. W. D. Snooke. Scome Tower; *Id.* In 1839 I found it in truly natural situations amongst brushwood on the rocks behind Bonchurch, in several places, but I doubt if it has escaped destruction from the recent buildings that now cover that once secluded spot. A plant or two by the road-side between Old Park and Mirables, 1844. Bridle road to Hursley, from Oliver's Battery, near Winton; Dr. A. D. White. Near to Wherwell, by the road-side, rather plentifully, and again by the side of the road to Enham, about half a mile from Andover; Mr. Wm. Whale! In the old London road, and near Walworth Gate (Andover), about half a score of plants in each place; *Id.*

—— *glechoma* (*Glech. hederacea*). Abundant on hedge and ditch-banks, in damp gardens, orchards, woods, groves and other moist shady places. I found a variety with remarkably glabrous shining leaves, and very deep blue flowers, in the Duke of Wellington's park at Strathfieldsaye, in May last, — the result possibly of excessive shade and humidity.

* This pond, properly Leechmere, from the number of officinal leeches it supplied to the surgeons and druggists of Newport, is now all but drained, and many of the plants that flourished there have disappeared in consequence.

Melittis Melissophyllum. Under bushes in dampish, shady woods and copses, chiefly, if not exclusively, in the southern part of the county, and not common there. Unknown in the Isle of Wight. In West Wood, close by Netley Abbey, where I have gathered it in plenty about fifteen years ago. Avington Wood; Dr. A. D. White, where I saw it, accompanied by the doctor for my guide, in considerable abundance last year. I believe it grows also in Armfield Wood, a few miles from Winchester. In the New Forest; Hudson. Probably tolerably frequent in the woods of south Hants, but I have not yet ascertained its distribution. This and *Calamintha sylvatica* are the two finest of our British labiates. The flowers vary much in colour, and are sometimes nearly white, as at Avington, where they were extremely pale, whilst at Netley the blossoms were deeply coloured, as Curtis paints them in 'Flora Londinensis.' The fresh plant has the weedy, unpleasant smell of the tribe (*Stachydeæ*) to which it belongs; when dried for the herbarium it becomes, on the contrary, eminently fragrant, like woodruff or new hay.

Lamium amplexicaule. In dry sandy or chalky fields, waste and cultivated ground, gardens, fallows, about dunghills, &c., not unfrequent, but scarcely to be called very common with us, at least in the Isle of Wight. Ryde, at Quarr Abbey, and elsewhere, occasionally. More frequent on the greensand, about Sandown, Lake and Shanklin. Frequent in sandy fields about Newchurch. Plentiful in a field near Bordwood farm, 1843, and generally dispersed over the island and county. Wolmer Forest, &c.

—— *incisum.* In waste and cultivated ground occasionally, but not common, and I am strongly disposed to believe it only a variety of *L. purpureum*. Amongst turnips in a field at Nettleston Green, December, 1838. About Shanklin in several places, 1843. Fields near Shanklin; Mr. Wm. Wilson Saunders!!!

—— *intermedium.* In similar places with the last; very rare? Gathered May 27th, 1845, in some plenty, on sandy hedge-banks in a lane betwixt Marvel Wood and Whitecroft, near Newport, in this island, and at the time supposed to be a form of *L. incisum*, as appears by the label inscribed "*L. incisum* (an verum?)," with the following remark beneath: "The leaves are somewhat greener or less hoary and hirsute, and less wrinkled than in *L. purpureum*, and the ring of hairs in the tube of the corolla is nearly or quite wanting." Careful comparison with figures and descriptions from various authentic sources, has convinced me that my Isle-of-Wight plant is the *L. intermedium* of Fries, a species frequent in the north-western parts of

the kingdom (Scotland and Ireland), but not hitherto recorded as found in the south of England.* My specimens well agree with the beautiful figure in E. B. Supplement, iv. t. 2941, and with Reichenbach's in Iconogr. Bot. viii. t. 722, fig. 964, a vast improvement on his miserable former one in vol. iii. t. 224, fig. 372. As it presents itself in this island the plant bears most resemblance to *L. incisum*, but my specimens are far larger than those I possess of the latter, being eighteen inches or more in length. It also agrees with *L. incisum* in the size of the flowers, which are less exerted than in *L. amplexicaule*, to which, as well as to *L. purpureum*, it likewise has much resemblance. The uppermost or floral leaves are less crowded than in any of the other three, and in the size, form, and depth of the serratures come much the nearest to *L. amplexicaule*, but differ in being for the most part distinctly sub-cuneate at base, or narrowed into an evident foot-stalk. Our plant is also greener and less hairy than any of its three allies, and the calyx segments, as far as can be seen in their rather too early flowering state, agree with the descriptions in being longer than the tube of the corolla. The strongly pressed and mostly but half-opened flowers preclude an examination of the tooth-ing of the lateral lobes of the lower lip. As the plant is accounted specifically distinct by many leading botanists in Britain and on the continent, I bow to their decision, but I may be permitted to observe, that the only tolerable characters assigned to it are rather differences of degree than of positive structure, and therefore of very inferior value. I should say that *L. intermedium* was a variety, and but a slight one, of *L. incisum*, and this latter but doubtfully distinct itself from *L. purpureum*. Let any one compare the two first together, and collate Mr. Babington's description of each in the Manual; he will find, I fear, very little in either to satisfy him of their specific distinction. The only *absolute* character, if it can be so called, that I can extract from the Manual for distinguishing *L. intermedium* from *L. incisum* is, that the lateral lobes of the lower lip in the one are furnished with a *small*, in the other with a *strong* tooth. The wedge-shaped attenuation of the leaves (at most but partial), and the presence or absence of the "faint ring of hairs" within the tube, are reciprocal and variable in both. I quite agree with Mr. Babington, when he says (speaking of *L. intermedium* in the Supplement to E. B.), "However difficult it may be to distinguish these plants upon paper, no one can see *L. intermedium* without being struck by its very different

* I think it has occurred to the Rev. W. A. Leighton, in Shropshire.

appearance; and indeed each of the four plants now mentioned is known at a glance by all who have been accustomed to see them in their native places." But I think botanists are standing on slippery ground when they assume a marked difference of aspect as a reason for adopting weak or variable specific characters. Every tolerably distinct variety of a plant is readily known from its type by some peculiarity of aspect, and certain differences of structure, although probably only of degree, must be present to impart such peculiarity of appearance; yet as a general rule, we never dream of making "habit" a reason for justifying a separation from the typical state of the species, unless we can establish for the variety some better claim to disjunction based on permanent deviations, or what appear *constantly* to be such, in some organ or organs of importance, from the normal or more usual condition under which the plant presents itself. Yet I fear that in our zeal for establishing a new species we too often permit a difference of habit to be a warrant for our precipitancy, and to serve as a make-weight in the absence of more solid and tangible characters. I confess to an exclusive partiality for good broad characters in species, and hold that a plant which is not readily distinguishable "on paper" is not likely to be much more so in the field or the herbarium.

The floral leaves of my specimens of *L. intermedium* are all spreading, not deflexed, as in *L. purpureum* and *L. incisum*, and are far less hairy than in these; the verticillasters are quite distinct, as in *L. amplexicaule*, but not so remote, the stem very copiously branched at base, and in other respects well according with the description of Fries (Novit. p. 192), the author of the species. The leaves in my plant, however, are not strictly reniform-cordate, but rather cordate, like those of *L. purpureum* and *L. incisum*, only deeply and coarsely incised, as in *L. amplexicaule*, the calyx-teeth rigid and spreading, not connivent or rather erect, as in that, after flowering.

Lamium purpureum. In cultivated and waste ground, gardens, fallows, on ditch and hedge-banks, walls, and in grassy places, everywhere abundant. Var. β . Flowers white, or nearly so. On a hedge-bank at Fishbourne, near Ryde.

——— *album*. On hedge-banks and walls, in waste ground, the grassy borders of fields, and amongst rubbish; very frequent, and widely dispersed over the county and island, but often rare or even wanting in certain limited districts or particular localities. A decidedly unfrequent plant about Ryde, at Binstead and elsewhere, occasionally. More common on the greensand, as about Shanklin.

Extremely common about Newchurch in waste ground and hedge-rows. Plentiful betwixt Newport and Carisbrook, and along the road from thence to Shorwell, where I gathered it having the flowers faintly tinged with red on the back of the upper lip of the corolla. At East Cowes, at the top of the new plantations, and in many other parts of the island abundantly.

Lamium Galeobdolon (*Galeob. luteum*). In moist, shady places, woods, groves and under hedges; plentifully in various parts of the Isle of Wight. Most abundantly in all the woods about Shanklin, Luccombe and Bonchurch. At Apse Castle, Appuldurcombe, Steep-hill, and in the Undercliff generally. About Cowes, Newport, Ryde, Gatecomb, and many other places, the tawny spotted flowers of the yellow archangel are seen mingling profusely with the blue bells of the wild hyacinth, and the white starry blossoms of the bear's garlic, in our shady woods, while they are amongst the earliest of Flora's gladsome train to enliven the spring. Common, I believe, over the entire county, but I have not noted its distribution with attention. In the beech-hangers at Buriton, near Petersfield, and I have remarked it in other places. Andover; Mr. Wm. Whale.

†*Leonurus Cardiaca*.* In hedges and waste places, about fences, and by road-sides; very rare in Hampshire, and probably not indigenous. Unknown, as yet, in the Isle of Wight. Hedge on Otterbourne Hill; Miss A. Yonge!!! Half a mile from Upham, on the road to Durley, on a high bank on the left hand going to Durley;

* Many wild plants once popular as articles of diet or medicine have long outlived their uses, and even the memory of them amongst us, as I have instanced in the Alexanders (*Smyrnum Olusatrum*). Others still preserve their credit as "yerbs" of great efficacy amongst rural practitioners of the empiric class, such as centaury, bear's-foot (*Helleborus foetidus*), five-fingered grass (*Potentilla reptans*), &c.; and I was lately applied to on behalf of a young woman to know where in this island she could obtain a supply of "Arabacca" (evidently Asarabacca, *Asarum europæum*), which she had been ordered to take by an itinerant quack, I know not for what complaint, and directed by him to look for in the woods as "a plant with round leaves, like coltsfoot." The poor girl might have looked long enough before she found the remedy she was in search of, a proof, too, this, of the ignorance and presumption of these "herb-doctors," who go about the country extracting from the pockets of their indigent and credulous patients their hard earnings, and directing them the use of remedies unsafe to tamper with from their potency, or even impossible to be procured, as in the case just cited. Dr. Salter and myself were not long since accosted by a person on Wolmer Forest, with a request that we would step to his house hard by, and tell him the name and nature of a plant that had puzzled all the wise heads in the neighbourhood, and transcended, he told us, the lore of a professed and experienced herbalist of Petersfield, who had never seen anything like it till then. The plant turned out to be the

Dr. A. D. White. Sought for there in vain, July, 1849, the plant is certainly extinct. In the former of these stations it grows in considerable plenty, but very near some cottages. I strongly suspect this plant is not an aboriginal in any part of the kingdom, or even of Europe, but to be of more eastern origin. I have never seen it in this country or on the continent in any place where it was not likely to have been introduced, generally close to houses or buildings of some kind, and in no instance remote from the haunts of man. The genus has its metropolis in Asia, especially Siberia, and I am inclined to think the motherwort may have migrated westward with the nomadic tribes that overran eastern Europe at the downfall of the Greek empire. I have never met with this plant cultivated in rustic gardens, like some others of former repute in medicine, nor can I find that the motherwort is known by that or any other name amongst the herb-doctors or the good women of this part at least of the realm.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
September 12, 1849.

(To be continued.)

BOTANICAL SOCIETY OF LONDON.

Friday, September 7, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

British plants from Dr. Mateer, Mr. John Tatham, Mr. Henry Fordham, Mr. J. B. French, Mr. Thomas Moore, Mr. Robert Withers, Miss A. M. Barnard, and Mr. T. C. Heysham.

Mr. C. C. Babington presented specimens of *Rubus pyramidalis* (*Bab.*) and *Rubus incurvatus* (*Bab.*), collected by him at Llanberis, North Wales, in September, 1848. (These specimens were sent in April last, but had remained at the Linnean Society, in a parcel addressed to a Fellow, who did not happen to call there until some months afterwards).

birthwort (*Aristolochia Clematidis*), which we were informed grows in plenty on a hedge-bank at Borden Lodge, on the Forest, doubtless naturalized, as it is near Winchester; in both places it has probably existed beyond the memory of man, and has become, in the latter station at least, an unconquerable weed; but its remedial uses, together with its very name, have no memorials left them in the pharmacopœia of our rustic Galens.

Specimens of *Odontites verna* and *Odontites verna*, var. *elegans*, were exhibited from Mr. John Ball, in illustration of the plants described by him in the 'Botanical Gazette' for September.

A paper was read from Mr. W. H. Coleman "On the plants indigenous to the Neighbourhood of Horsham, Sussex."—*G. E. D.*

Notice of 'Cybele Britannica; or British Plants and their Geographical Relations. By HEWETT COTTRELL WATSON. Vol. II. London: Longman and Co. 1849.'

THE second volume of 'Cybele Britannica' has just issued from the press: it presents no new feature, being simply a continuation of the first, and proceeding regularly with the orders, from Loranthaceæ to Alismaceæ inclusive. The author proposes to prepare a third volume for the press in 1850 or 1851; and in order to make the work as complete and useful as possible, in the light of a condensed arrangement of facts, Mr. Watson earnestly recommends that competent botanists will make public through the periodicals, or communicate to himself, any information which may tend to fill up deficiencies, remedy defects, or correct errors, in either of the earlier volumes.

"The Orders which still remain to be treated in the third volume, are the two heterogenous assemblages of Fluviales and Araceæ, as these stand in the 'London Catalogue of British Plants,' together with Restiaceæ, Juncaceæ, Cyperaceæ, Gramina, Filices, and Pteridioides; the last mixed group including Lycopodium, Isoetes, Pilularia, and Equisetum. Taken together, these orders include upwards of three hundred species, that is, rather less than half the number treated in the present volume."—p. iv.

But with the addenda to be made to the orders previously published, this third volume will probably equal in size those which have preceded it.

In our notice of the first volume of this important and really laborious work, we fully explained its object and plan, quoting largely from the author's own pages: on the present occasion we shall do no more than make a few extracts from the text, in order to exhibit the author's mode of treating plants differently circumstanced.

In the first place we will select a plant distributed throughout Britain, from the extreme south to the extreme north, and from the sea level to the mountain tops.

" 517. *GALIUM SAXATILE*, *Linn.*

- " Area general.
- " South limit in Cornwall, Isle of Wight, Kent.
- " North limit in Shetland, Orkney, Hebrides.
- " Estimate of provinces 18. Estimate of counties 82.
- " Latitude 50—61. British type of distribution.
- " A. A. regions. Inferagrarian—Superarctic zones.
- " Descends to the coast level, in the Peninsula.
- " Ascends to 1250 yards, in West Highlands.
- " Range of mean annual temperature 52—84.
- " Native. Ericetal. One of the most universally distributed species in Britain, except that it has been banished from large tracts by the farmer and gardener."—p. 16.

As an example of a species equally widely distributed with *Galium saxatile* over a horizontal area, but the upper limits of which are more determinate, and require to be set forth more in detail, we will cite the common Ling (*Calluna vulgaris*).

" 695. *CALLUNA VULGARIS*, *Salisb.*

- " Area general.
- " South limit in Cornwall, Isle of Wight, Kent.
- " North limit in Shetland, Orkney, Hebrides.
- " Estimate of provinces 18. Estimate of counties 82.
- " Latitude 50—61. British type of distribution.
- " A. A. regions. Inferagrarian—Midarctic zones.
- " Descends to the coast level, in the Peninsula.
- " Ascends to 1100 yards, in East Highlands.
- " Range of mean annual temperature, 52—86.
- " Native. Ericetal. I have authority for the existence of this well-known shrub in every county of Britain, with the exception of Berks, Bucks, Northampton, Radnor, Montgomery, Flint, Lincoln, Ayr, Haddington, and Linlithgow; and in half of these ten counties I have probably seen it myself. The upper line runs from 900 to 1100 yards, in the West of Aberdeenshire; on and near Ben Lawers, in Perthshire, so low as 750 to 900 yards; about Drumochter Forest, in the counties of Perth and Inverness, from 900 to 950 yards; on and about Ben Nevis, from 750 to nearly 900 yards; about 800 yards in the north-west of Sutherland. Mr. A. Petermann gives me the altitudes of 2334 and 2328 feet, on Stob Choressan and Sgur Ghaoire, two mountains near Ben Nevis."—p. 150.

Linnæa borealis, a plant interesting to all botanists on account of its name,—the chosen symbol of the ‘Phytologist,’—and, moreover, a species so restricted in its distribution as to excite interest on that score also,—is thus treated.

“ 511. *LINNÆA BOREALIS*, *Gronov.*

“ Area * * * * * 11 * * 14 15 * 17.

“ South limit in Northumberland or Berwickshire.

“ North limit in Ross, Moray, Banff, Aberdeen.

“ Estimate of provinces 4. Estimate of counties 10.

“ Latitude 55—58. Scottish type of distribution.

“ A. A. regions. Midagrarian—Midarctic zones.

“ Descends to a moderate altitude, say 100 yards.

“ Ascends to 800 or 850 yards, in East Highlands.

“ Range of mean annual temperature, 46—38.

“ Native. Sylvestral. This little plant, so much a favorite with botanists, has been found in the counties of Northumberland, Berwick, Edinburgh, Perth, Forfar, Kincardine, Aberdeen, Banff, Moray, and Ross, and to these ten, perhaps, it might not have been deemed too hasty to make an addition, by setting down the estimate at 12. Apparently absent from the western side of Scotland; and unknown in England, except for the single locality ‘in a plantation of Scotch Firs, at Catcherside, in the parish of Hartburn’ (Miss Emma Trevelyan, in Hook. Brit. Flo.); on the genuine nativity of which a doubt has been thrown, because the trees are said to have been brought from Norway: was this the fact?”—p. 11.

Erica ciliaris, a very local species, gives occasion for the introduction of various memoranda and notices, descriptive and historical. We cite the author’s remarks entire.

“ 691. *ERICA CILIARIS*, *Linn.*

“ Area 1 2 [3].

“ South limit in Cornwall.

“ North limit in Dorset.

“ Estimate of provinces 2. Estimate of counties 2.

“ Latitude 50—51. Atlantic type of distribution.

“ Agrarian region. Inferagrarian zone.

“ Descends to the coast level, in the Peninsula.

“ Ascends to 50 yards, more or less.

“ Range of mean annual temperature 52—51.

“ Native. Ericetal. Peculiar to the two counties above mentioned, as far as hitherto ascertained; having been first introduced into the British Floras some twenty years ago, when it was sent to Sir W. J. Hooker instead of *E. vagans*, by the late Rev. J. Tozer, who had been applied to for the latter, and consequently looked out for some *Erica* different from *Tetralix* and *cinerea*. The localities in Cornwall are variously described, but are all of them about Penryn, Truro, and St. Agnes. The Dorset locality extends, according to Dr. Salter, ‘throughout nearly the whole space from Arne to Corfe, a distance of fully four miles.’ The curiously intermediate links between this and *E. Tetralix*, one of which is described by Bentham as a variety (*‘Watsoni,’* DC. Prodr.) of *E. ciliaris*, are probably hybrid varieties. At one end of the series, they are barely distinguishable from *E. Tetralix*, by the slightly larger and ventricose corollas; while, at the opposite extremity, they pass into *E. ciliaris* almost imperceptibly. It is thus optional to place them as varieties, under either or both of the two species. I found numerous plants, and thus obtained a series of the forms, on a heath near Truro, which was then (1831) in process of enclosure; and looking at the map, I think it must have been on the road towards Redruth; but I was an utter stranger to Truro at the time, and was strolling along whither chance might lead. The Rev. C. A. Johns has recently given me a living plant, raised from cuttings of *E. Watsoni*, but not exactly the form described by Bentham, taken from a single shrub of it which was found by Mr. Borrer (in 1847?) ‘on the right hand side of the lane which leads from the Foundry at Perran to the plantation in which *E. ciliaris* grows so abundantly.’ It is highly probable that *E. ciliaris* had been really known as a native many years ago, but again lost sight of until re-discovered by Mr. Tozer. In Curtis’s Botanical Magazine, t. 484, it is remarked of this Heath: ‘C. Bauhin, mistakenly, calls it *anglica*, which has given rise to the idea of its being an English plant, but it is not. I have a specimen of true *E. ciliaris*, obtained by Mr. John Ellis from a garden shrub, which, he was informed, had been transplanted from a common near Farnham, in Surrey. It is probable that there was some mistake about the individual shrub, for *E. ciliaris* is killed down by very severe winters, in my own garden, in the same county; and it would therefore seem to require a milder climate for its natural habitat.”—p. 149.

We will next give an example of Mr. Watson’s mode of treating a familiar species, the distribution of which has been rendered obscure

through the mystification of modern commentators, and consequent misapplication or crossing of names.

" 847. *MYOSOTIS PALUSTRIS*, Linn.

" Area 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 * [17 18.]

" South limit in Cornwall, Isle of Wight, Kent.

" North limit in Forfar, Perth, — ?

" Estimate of provinces 16. Estimate of counties 75.

" Latitude 50—57 (58). British type of distribution.

" Agrarian region. Inferagrarian—Midagrarian zones.

" Descends to the coast level, in the Peninsula.

" Ascends to 100 or 200 yards, in England.

" Range of mean annual temperature 52—47.

" Native. Paludal. Three species, as they are now held to be, were formerly included under this name by British botanists. In consequence, doubts will arise in many cases to which of those three species the name has been applied by individual authors. According to my own opportunities for observation, the true *M. palustris*, or that described as such in Hooker's British Flora and Babington's Manual, has the most restricted geographical range in Britain; and though probably the commonest of the three in the southern provinces and lower agrarian zone, yet it appears to become the most rare in the northern provinces and upper agrarian zone, if found at all in this latter zone, which it is not satisfactorily ascertained to be. In the Flora of Shetland, *M. palustris* and *M. cæspitosa* are enumerated; but there seems good reason to infer that the former name really intends the species *M. repens*. In the Catalogue of Hebridean plants, we find *M. repens* and *M. cæspitosa*, without *M. palustris*. In the Orkney Catalogue and Moray Flora, *M. palustris* is the only species, or only name, mentioned; and likely enough it there stands for the two species enumerated among the plants of the Hebrides. In Murray's Northern Flora, *M. palustris* and *M. secunda* are the two names used; but the descriptions here come in to assist us, and they show sufficiently well that the former name means the species *M. cæspitosa*, while the latter name is a synonym for *M. repens*. In the Flora Abredonensis, *M. palustris* and *M. cæspitosa* are enumerated; the former name probably intending the species *M. repens*, and the latter being applied correctly. In the Flora of Forfarshire, all the three species and names are included. I have collected the three species myself in Perthshire; but only *M. repens* and *M. cæspitosa* to the north of the Grampians. Still, it cannot be deemed unlikely that the

true *M. palustris* will be found up to the North Highland province, in the low grounds. Dr. Dickie gives 1200 feet as the altitudinal limit of *M. palustris* in Aberdeenshire, probably intending *M. repens*. I have myself met with *M. palustris* in low situations only.”—p. 269.

Convallaria bifolia affords a good example of the author's mode of dealing with a species the nativity of which in Britain requires confirmation, and we may add that there are many which come under this category.

“1098. *CONVALLARIA BIFOLIA*, *Linn.*

“Area [3 4 * * * * 9 * 11].

“Incognit or Alien. This was lately announced to British botanists as having been discovered wild or naturalized in the woods at Howick, Northumberland. Subsequently, the alleged habitat was visited by Mr. Borrer, who reported in the *Phytologist*, ii. 432, that “the plant has been completely extirpated at Howick. The spot was close by Earl Grey's garden.” It is very much to be wished that real botanists would not only discountenance, but also treat with public reprobation, every attempt to pass off the accidental finding of stray garden plants as a discovery and addition to British botany. And it is equally to be wished that Mr. Borrer would more frequently afford us the benefit of his own experience and judgment, openly and boldly expressed, after visiting the spot of any announced discovery; which, it is understood, he so regularly makes a point of doing. To the store of practical experience that must have been thus acquired, Mr. Borrer adds also other important qualifications, which altogether ought to give to his opinion more value and weight than could be accorded to the opinions of any other British botanist, in reference to questions bearing on the nativity of newly-discovered plants, and the genuine character of localities for local or novel species. The announcement of *Convallaria bifolia* being found in Northumberland, for which there seemed no geographic improbability, resuscitated the overlooked fact of its occurrence in Lancashire, ‘in Dingley Wood, six miles from Preston, in Aulderness, and in Harwood, near Blackburn, likewise,’ having been recorded long since by Gerarde. And Mr. Edward Edwards afterwards stated in the *Phytologist*, i. 579, that the same species had been reported indigenous in the woods at Hampstead, in Middlesex, in Park's ‘History of Hampstead;’ and that he had himself, ‘in 1835, detected several patches of the plant, apparently well established and really wild, under the shade of fir trees, growing near

the highest parts of Caen Wood, between Hampstead and Highgate ;' likewise, that he had found it, a year or two previously, under 'fir trees in Apsley Wood, Bedfordshire.' The only doubt which arises in respect to these two last-mentioned counties, is, that Mr. Edwards may possibly have mistaken some other plant for the *Convallaria bifolia*, and more particularly as he writes on the recollection of several years back."—p. 465.

Finally, *Anacharis alsinastrum*, the *Udora verticillata* of the Phytologist, and first made known to the botanical world of this country through the medium of its pages ; and the almost simultaneous discovery of which in different and distant localities is remarkably interesting ; affords us a good opportunity of showing how Mr. Watson has brought down his information to the last hour of going to press : in this particular, and apart from all its higher merits, the 'Cybele Britannica' must ever be considered a model publication : it would be difficult indeed to point out a trustworthy record of the occurrence of a rare species in Britain that the author has overlooked or failed to cite.

"1108.* ANACHARIS ALSINASTRUM, *Bab.*

"Area * 2 * 4 5 * * 8 * * * * 14.

"South limit in Hants, Northampton, Stafford.

"North limit in Edinburgh, Berwick.

"Estimate of provinces — ? Estimate of counties — ?

"Latitude 52 (50)—56. Uncertain type of distribution.

"Agrarian region. Inferagrarian—Midagrarian zones.

"Descends to the coast level, or nearly so.

"Ascends to 100 yards, less or more, in East Lowlands.

"Range of mean annual temperature 49—47.

"Denizen. Lacustral. First announced as a British plant about the close of 1847, under name of *Udora verticillata*. Doubts were soon suggested respecting its nativity in Britain, from the circumstance of its being shortly afterwards observed in ponds, to which it might possibly, and even not improbably, have been introduced from America. Mr. Borrer found it in a pond in Leigh Park, near Havant, in the south-east of Hants, which is the most distrusted locality for it in England. Mr. Kirk (Phytol. iii. 389) observed it abundantly in the reservoirs at Watford Locks, 'on the same line of canal as Foxton Locks,' in Leicestershire. The reservoirs at Foxton Locks, near

Market Harborough, were the original habitat, in which it was discovered by Miss Kirby, and subsequently gathered plentifully by the Rev. A. Bloxam. Dr. James Mitchell has found it in the river Leen, and in the ditches of adjacent meadows, near Nottingham, 'certainly not introduced.' (Bot. Gaz. i. 26). Dr. G. Johnston appears to have been the first botanist who gathered the plant in this country, in the neighbourhood of Berwick-on-Tweed. (Proceedings Berw. Nat. Club; and Phytol. iii. 540). Mr. C. C. Babington informs me that it has been also found in Duddingston Lock, near Edinburgh, by Professor Balfour. In Staffordshire, according to Mr. Edwin Brown, in Phytologist, iii. 647."—p. 474.

Notwithstanding the pains which Mr. Watson has taken to arrange species under distinct heads as regards their claim to be considered truly indigenous; notwithstanding, moreover, the lucid manner in which the various terms of Native, Denizen, Colonist and Alien are defined; still it appears to us that these boundaries are rather drawn too closely, and that Nature herself is destined to overleap them. If we take, for instance, *Mimulus luteus*, of transatlantic origin, and observe how in a variety of distant localities it is extending and establishing itself; if we reflect on the extreme improbability of its ever being exterminated, we shall be willing to excuse the unborn author of a future *Cybele* who shall define it as Mr. Watson does the group of 'denizens' to which the sweet violet is now referred. "At present maintaining its habitats, as if a native, without the aid of man, yet liable to some suspicion of having been originally introduced." Thus there is not only a possibility, but a probability, that a species shall advance with time from the station of 'alien' to that of 'denizen,' and perhaps a 'denizen' such, for instance, as the sweet violet, may take on its honoured, but unobtrusive presence, the title of 'native:' or looking back on the past, instead of forward into the future, may not the daisy have once been a 'denizen,' or still earlier an 'alien,' although it now seems so thoroughly established as part and parcel of the virgin turf?

K.

Attempt to characterize an apparently undescribed Species of Lastrea. By EDWARD NEWMAN.

IN describing *Lastrea spinosa* I have said "This fern is closely allied to the preceding (*L. cristata*), and so much do they resemble each other that I have found it next to impossible to fix on satisfactory diagnostics whereby to distinguish them." In fact, in the splendid series of *L. cristata* received by the Botanical Society from Bawsey Heath, there were specimens which I found myself unable to refer with confidence to either species. About the same time I received from the Rev. Geo. Pinder specimens of a very singular fern, from Wybunbury bog, in Cheshire: these I referred, without much hesitation, to *Lastrea spinosa*: the Cheshire and Norfolk specimens were so exceedingly dissimilar in general appearance, that it never occurred to me to compare them together with a view of ascertaining whether they possessed any characters in common.

Early in August last, Mr. Lloyd, a gardener who has paid great attention to the British ferns, brought me a plant well established in a pot, of a fern which he considered new to Britain: he had previously shown it to several eminent botanists, and especially those who have paid attention to ferns: others have seen it since it has been in my possession, and although I refrain from giving the names of six gentlemen who have expressed opinions, however confidently, yet not intended for publication, I may perhaps be allowed to record the opinions without the names. I should premise that the plant is in perfect vigour, in full fructification, and without any symptom of disease or malformation: these six gentlemen have pronounced it—

1. A form of *Filix-mas*.
2. *Lastrea rigida*.
3. *Lastrea cristata*.
4. *Lastrea spinosa*, a strong variety.
5. *Lastrea dilatata*, a rigid variety.
6. No way different from *Lastrea spinosa*, *Newm.*, I mean, it would hardly pass for a *var*.

It is singular, that out of six high authorities no two entertain the same opinion. The plant which has elicited such conflicting opinions has fronds resembling those received both from Bawsey and Wybunbury, and therefore establishes the specific identity of those very dissimilar forms. I attempt to describe both under the name of

Lastrea uliginosa.

Rhizoma tufted.

Habit erect, rigid: arrangement of fronds shuttlecock-fashion, or spreading from a common centre.

Normal form.—*Fronds* of the normal form, linear, elongato-acuminate at the apex, thirty inches long, five inches wide: their vernation simple, not twisted.

Rachis deeply grooved in front, flattened at the sides, rounded behind, glabrous, bright green above, purple at base, slightly tinged with purple at the back: its stipes or naked portion nine inches in length: scales somewhat sparingly distributed, obtusely ovate, with a lengthened acute apex, which is generally twisted, and which terminates in a setaceous point; pale brown, transparent, concolorous: these larger scales are intermixed with others very slender and hair-like: all the scales readily fall off, leaving small black scars on the stipes.

Pinnæ elongato-deltoid, with acuminate deflexed apices and winged midrib, the 1st, 2nd, and perhaps 3rd pair rather shorter and rather broader at base than the 4th, 5th, and 6th pairs, and hence rather more deltoid; set on the rachis rather obliquely, so that their upper surface approaches a horizontal position, although the frond is nearly erect.

Pinnules of moderate size, sessile, adnate, deeply notched, the divisions serrated, the serratures aristate: 1st inferior pinnule longer than first superior.

Clusters of capsules on all the pinnæ, but less abundant on the lower ones, relatively small, remaining distinct and separate except at the apex of the frond, at first green, then white, subsequently black, and finally bright brown; the green colour is due to the frond seen through the young and perfectly transparent involucre; the white colour is due to the involucre, which becomes opaque and white; the black colour, to the ripe and full capsules; and the brown, to the empty capsules and elastic rings.

Involucre regularly reniform, its margin very entire, its disk and margin eglandulose.

Abnormal form.—*Fronds* narrower, thirty-four inches long, four-and three-quarter inches wide: less rigid than the normal form.

Pinnæ very distant, very narrow, acuminate, with winged midrib.

Pinnules very small, very distant, sessile, adnate, deeply notched, rather obtuse at the apex.

Fronds of this character have a very peculiar and starved appear-

ance, but exhibit the adnate attachment of the pinnules very conspicuously.

Barren Frond. The earlier fronds of the season, together with some of the later ones rising from the lateral crowns, are perfectly without fructification: they are shorter and broader, and the pinnæ are longer, broader, and more crowded than in the normal fertile fronds. The marked difference and permanent distinctness between the fertile and barren fronds is a character common to *Lastrea Thelypteris*, *L. cristata* and *Allosorus crispus*, but does not obtain in the generality of species, all the fronds having, in a very great majority of instances, a tendency to produce fructification, although adventitious circumstances of situation, temperature, soil, &c., may cause an increase or diminution of the quantity of seed produced.

Affinities to *Lastrea cristata* and *L. spinosa*. It resembles *cristata* in veneration and adnate pinnules: it resembles *spinosa* in the figure, notching and aristation of the pinnules: it resembles both in its erect, rigid habit, and ovate, diaphanous, concolorous scales, and also in its entire, eglandulose involucre.

Diagnosis. It differs from *L. cristata* in the more acuminate, more divided, more serrated, more aristate pinnules, also in the more direct course of the veins, a difference much more easily observed than described: it differs from *L. spinosa* in the adnate, decurrent pinnules, in the tufted rhizoma and consequent regular habit of growth, and in the simple veneration: it differs from both these species in the more equal distribution of the clusters of capsules over all parts of the frond.

Habitat. This fern occurs only in wet, marshy situations, or on moist heaths. Wybunbury bogs, Cheshire: Oxton bogs, Nottinghamshire: Bawsey Heath, Norfolk.

Cultivation. It grows freely in cultivation, retaining all the characters which distinguish it as a wild plant: in the spring it is twenty days later than *L. multiflora* in expanding, ten days later than *L. spinosa*, and ten to fifteen days earlier than *L. cristata*.

In offering these observations to the notice of British botanists, I am perfectly aware that I lay myself open to the charge of species-making. I hope, however, that the candour of my readers generally will appreciate the attempt more justly: they will perhaps bear in mind that I have not hitherto been guilty of adding a single specific name to our list of British ferns.

EDWARD NEWMAN.

London, September 27, 1849.

Notice of Leersia oryzoides in Hampshire.

By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

SUCH readers of the 'Phytologist' as interest themselves in the geographical distribution of our native plants, will doubtless feel pleasure in learning that the hitherto rare and local grass,* *Leersia oryzoides*, extends its range into the western part of this county. On the 27th of September, I detected it in very moderate quantity in the Boldre River at Brockenhurst Bridge, in the New Forest, growing amongst rushes, in company with *Isnardia palustris*, in two places; in one of which, immediately below the railing on the left side of the road going from Brockenhurst to Lyndhurst, it must have been more than once under my eye, as I had previously collected specimens of *Isnardia* within a foot of the *Leersia* itself, which it is probable would again have been passed unnoticed by me, had I not a fortnight before gathered the grass in its third Sussex station, in the Arun at Amberley and Bury, four miles north of Arundel, and hence familiarized myself with the aspect of the plant in the occult form in which it usually presents itself to observation in this country. As I was at the moment of finding it awaiting the down train to Ringwood, time did not allow of an attempt to trace the *Leersia* higher or lower along the stream, but on the 7th of October, returning to Lymington, I detected it in somewhat greater quantity amongst reeds on the margin of the same river, nearly under the timber railway-viaduct that crosses the stream a short distance above Brockenhurst Mill, and about half a mile below the first station at Brockenhurst Bridge. Continuing the search, I found it in a broad ditch a little lower down than the mill, just where the Boldre River enters by a weir the precincts of Watcomb and Brockenhurst Parks, growing in two or three scattered and isolated tufts of moderate size, but still not abundantly. The barren exserted portion of the panicle had in every instance fallen away entirely, but the sheaths were inflated by the concealed part, bearing plenty of ripe seed, and the specimens beneath the railway-viaduct were the largest and tallest I have seen of English growth. I can scarcely doubt that this most curious grass exists in the upper part of the Boldre River, and probably in greater plenty, and that it will be found in many of our Hampshire streams and pools between this station and the original Sussex habitats.

* It has lately been ascertained to abound in several and distant localities in Sussex, since its first discovery in that county a few years back by Mr. Borrer.

As *Leersia oryzoides* is a grass of no easy detection in this country, from the tendency the inflorescence has to remain concealed in the sheaths of the leaves, and from the general aspect and habit of the plant possessing but little by which to distinguish it at sight from other marsh grasses, both which concurred in keeping it so long unknown as a native production; some notice of its habits and peculiarities may be useful in facilitating its discovery in other parts of the kingdom,* by those whom, without such a guide, the best descriptions, plates, and even dried specimens could hardly enable, until habituated by practice, to recognize it in its native marshes.

The localities affected by the Cutgrass are shallow ditches, drains of water-meadows, and the reedy or grassy margins of rivers, brooks and pools.† It seems to evince a partiality, both here and on the continent, for mill-dams,‡ doubtless because the water is tranquil and the supply constant; and in most of the English stations it grows associated with the common reed (*Phragmites communis*), to the first young and tender shoots from the suckers of which it so nearly assimilates in aspect, that a close examination is requisite to distinguish them when intermixed, and by this resemblance even an experienced

* It would be presumptuous to pretend assigning limits to the extension of the *Leersia* westward or northward of its present new locality, but its continental distribution does not warrant our indulging a hope that it will be found to spread much further than at present, at least in the former of these directions. The opinion put forward by me in a former note on this subject (Phytol. iii. 368), that the *Leersia* and *Isardia* will be found coextensive in their distribution over England, appears to be receiving confirmation. To hazard a conjecture purely theoretical, the occurrence of both these plants may be predicted in Mr. Watson's districts of the Channel and Thames, with very possibly an extension of the boundary in a north-easterly direction into that of Ouse—this last being nearly in the polar limits of the parallel of the two species on the continent of Europe. In general, however, plants of the eastern or Germanic type of distribution fall short, in this country, of the latitude they attain on the continent, and there is no ground for supposing an exception to the usual law in the present instances.

† In America it is extremely common in wet or damp places of all kinds, but in England it would seem to be more perfectly aquatic, and to require to have its roots at least immersed. The habit of the English plant is likewise more erect than the American, in which the culms are usually very decumbent at base, and the growth diffuse or straggling.

‡ Some German writers consider the *Leersia* as introduced and only naturalized in central Europe,—an idea much on a par with the innumerable fantasies of a like kind entertained of our own plants. Thus Meyer, in his excellent work the '*Chloris Hanoverana*,' says of our grass in that kingdom: "An Gewässern selten und nur verwildert; ursprünglich aus Italien." In England, and no doubt in Hanover too, it is certainly indigenous.

eye is liable to be baulked and partially disabled from discriminating between them at all times. The culms of the *Leersia* are in general more slender than those of the reed, the joints further apart, and the sheaths clothing the internodes slightly swollen or inflated into a somewhat spindle-like form, particularly the uppermost sheath, which appears so from containing within its convolutions the embryo or mature panicle, according to the time of year. By slitting or tearing the sheath open, the included florets of an oblong figure, with strongly ciliated margins, together with the extreme asperity of the leaves and lower joints of the culm (in which it differs from every other British grass), will at any season reveal the true nature of the specimen under examination. But as the species may be growing in situations where it cannot be tested by handling, it becomes of importance to be able to distinguish it at some distance, from the aquatic herbage by which it is liable to be veiled from any but an experienced eye. The readiest mark in this case is the sudden or abrupt termination of the culm in a short, spreading leaf at the top of the slightly ventricose and fusiform sheath, looking as though the upper part of the plant had been plucked or broken off from the lower, and by this it may be distinguished from a distance when the panicle is yet undeveloped, or too slightly exerted to arrest attention. The tender shoots of the reed with which the Cutgrass is so apt to be confounded, are terminated by an acutely-pointed and convoluted leaf, enclosing other leaves destined to surmount it in their turn, till the growth of the shoot is completed and eventuates in the production of the flower-stalk and panicle; or if destined to remain barren, the shoot ends indeed in an expanded leaf, but that leaf is upright, not spreading, and, besides, long ere its growth ceases, the shoot has lost much of the resemblance it bore to the *Leersia* in its younger state, and is not likely to occasion a mistake between them. True it is, that the Cutgrass will itself present such a convoluted terminal leaf in its earlier growing state, till the axis has ceased to elongate, and hence there is still a chance of its being overlooked for a nascent reed, unless its identity can be put to the proof by drawing it through the hand, when the great asperity of the *Leersia* betrays it in an instant. Some attention is, however, necessary even here, for the plant varies a good deal in the degree of roughness; certain specimens gathered by me at Amberley were inconsiderably scabrous, whilst the majority, like the Hampshire ones, were as remarkable for their extreme asperity, which even makes some precaution requisite to avoid cutting the hand, an accident that is said to befall the women employed in weeding

it out of the rice-fields in Lombardy, which are greatly infested with this grass. There is always roughness enough in the Cutgrass to serve the purpose of discriminating it from the common reed and all other British Gramineæ, with common attention, but a search in the two or three uppermost sheaths for the concealed panicle should next be resorted to. The leaves of the Cutgrass are pale green, like those of the nascent reed shoots, but have mostly a shade of brown or olive in them not possessed by the latter; at other times the colour in both is too nearly alike to be distinguishable at any distance. At the close of summer, when the plant is fully matured, the leaves are easily recognized amongst the surrounding herbage by their obviously paler green, with a strong cast of yellow.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
October 12, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, October 5, 1849.—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced:—

‘*Cybele Britannica*,’ vol. ii., by Hewett Cottrell Watson, Esq.; presented by the author. ‘*The Natural History of Staffordshire*,’ by R. Garner, Esq.; presented by the author. ‘*Transactions of the Horticultural Society of Berlin*,’ presented by that society. ‘*Journal of the Statistical Society of London*,’ presented by that society. ‘*Pharmaceutical Journal and Transactions*,’ presented by the Pharmaceutical Society.

British plants from the Rev. C. Parish, Mr. J. B. French, Mr. S. Hailstone, Mr. E. Brown, and Mr. D. Oliver.

Mr. H. Bidwell presented specimens of *Lastrea cristata* (*Presl.*), collected by him at Bexley decoy, near Ipswich, in August last.

The continuation of Mr. W. H. Coleman’s paper ‘*On the Plants indigenous to the Neighbourhood of Horsham, Sussex*,’ was read.—*G. E. D.*

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 669).

Galeopsis Ladanum. In dry gravelly, sandy, or chalky corn-fields, fallows, waste ground, and on chalk or limestone rubble; also on ditch-banks, dry, stony hills, grassy borders of fields, thickets, and amongst pebbles on the sea-beach. Abundant in most of the chalk districts of the Isle of Wight, as along the Undercliff about Yarmouth, Newport, Shorwell, Bembridge, &c. Frequent, I believe, throughout the county. About Selborne, &c. Var. β . *canescens*, Koch; *G. canescens*, Schultze. Near Southampton, on shingles; Mr. Babington. I think I have remarked this form on the way from Southton to Netley Abbey, probably Mr. B.'s station.

——— *Tetrahit.* In cultivated ground amongst corn, &c.; in waste places, moist woods, thickets, hedges and about ditches; abundantly in the Isle of Wight and county generally. Var. β . Flowers white. At Lower Knighton, near the mill. A variable species in the colour and markings of the flowers. *G. ochroleuca* (*G. villosa*, Sm.) and *G. versicolor* may possibly be found in the county. The former is in Britain a rather northern plant, but the second has been found in several of the southern and eastern counties—as Sussex—and is very likely to prove a native of the sandy tracts along the borders of the county between Petersfield and Farnham, a district which has yielded several interesting additions to the Hants flora this summer, and is full of promise for future investigation.

Stachys Betonica (*Betonica officinalis*, Sm.). In woods, groves, thickets, and dry, open sandy or heathy pastures; very common in the Isle of Wight, and in most parts of mainland Hants visited by myself. OBS.—*S. germanica* should be looked for in chalky thickets and pastures, as it occurs in plenty in the adjoining county of Berks, as well as in Oxfordshire. I remember finding it a good many years since in one of the two larger of the Channel Islands, apparently quite indigenous, but the locality has escaped my memory.

——— *sylvatica.* In damp shady situations, woods, thickets and hedges, on ditch-banks, by stream-sides, and in waste weedy places; abundantly over the county and island.

——— *palustris.* In wet marshy places, boggy thickets, by rivers and ditches, also in moist arable land, corn-fields, gardens, &c.; very

common. Var. β . Leaves all shortly stalked. Near Shanklin; Miss E. Kirkpatrick. Field at Lower Morton, by Sandown. The var. *ambigua* (*S. ambigua*, *Sm.*), which differs from this in its broader, more cordate leaves, and which occurs in Sussex, Mr. A. Hambrough tells me he found by the side of a new road between Ryde and Sea View,

Stachys arvensis. In waste and cultivated ground, fallows, and dry open fields; very frequent in the Isle of Wight, and I believe throughout the county. Common about Ryde in the autumn, amongst turnips, potatoes, &c.

Obs.—*S. annua*, which is a common weed in various parts of central Europe, and has been found at Gadshill, in Kent, will in all probability prove to be native to the south-east of England, though at present supposed to have been imported with grass-seed in its only known station. I have seen it abundantly about Paris, and in Germany. *S. recta*, also indigenous to the north of France, and in Normandy, may some day become accredited to the English flora. The recent confirmation of *Teucrium Botrys* as indubitably wild at Box Hill, teaches us that we may look forward with confidence to the discovery of many more continental plants in the south and east of England, the flora of which is every year assimilating to that of the mainland of Europe, by the detection in increased abundance of recently discovered species, or the addition of others entirely new to Britain.

Ballota nigra. Var. α . *B. foetida*, *Lam.*, *Bab. Man.* p. 252. In dry waste places, borders of woods and fields, amongst rubbish, and on hedge-banks; everywhere, but in greatest plenty in general on approaching towns and villages. One of the commonest plants of its order in this part of England, occurring profusely in almost every hedge throughout the Isle of Wight, and in most, if not all, parts of the county equally abundant. Var. β . Flowers white; rare. By the road-side immediately opposite Rew farm, near Ventnor, and in a lane near Merston. Between Freshwater Gate and Farringford Hill; Mr. W. D. Snooke. I am at this time unable to say to which of the two supposed species my Merston plant and that of Mr. Snooke are referrible, but the Rew-farm specimens plainly belong to the *B. foetida* of Lamarck, in having very broad, shortly acuminate and recurved calyx-teeth, as does also the white-flowered form in a field-hedge between Idlescombe farm and Bottomground Rew, which I found growing with the common purple-flowered state, in moderate quantity and still in good flowering condition, October 28, 1845. But at St. Lawrence I have gathered a white-flowered *Ballota* exactly corresponding to the *B. ruderalis* of Fries, the calyx of which is longer, narrower,

and "gracefully dilated upwards;" the teeth ovate-lanceolate, tapering into long points, and erecto-patent. But as Mr. Bentham observes (Labiât. p. 598), "The form of the limb of the calyx is so uncertain within the above mentioned limits, that I cannot distinguish the three plants figured as separate species by Reichenbach,"—a remark to the correctness of which my own repeated observations on our native species enable me to bear testimony.

Marrubium vulgare. In dry waste places, pastures, by road-sides and about villages; rare in the lower and more level parts of the county and island, more frequent and most truly wild in the higher districts, and especially on the elevated chalk downs, and along the earthen or stone fences that traverse them. A local plant in the Isle of Wight, more frequent in West than in East Medina. Pastures at Bonchurch. Frequent on many parts of Afton Down, and in other places about Freshwater. On the slope of the down a little above Brook Church, in plenty, and about Brixton. Abundant on all the downs west of Calbourn; Sandown; Colwell: Mr. W. D. Snooke (in Fl. Vect.). Sparingly and sporadically in the lower grounds of the island, where in many cases it has probably strayed from cultivation. On several parts of Short Heath, near Selborne, and observed by me in various parts of mainland Hants, but I find no memoranda of particular stations amongst my notes, which for that portion of the county are of very recent compilation, and consequently imperfect as regards many species native thereto. I should say the *Marrubium* was by no means uncommon throughout the county, but partially or locally distributed, chiefly in the hilly parts of it. I have seen it growing plentifully and perfectly naturalized in Georgia, United States.

Teucrium Scorodonium. In dry woods, thickets, hedges, and rough, stony, bushy, or heathy places; plentiful in most parts of the county and Isle of Wight.

†—— *Chamædrys.* On old walls, banks and borders of fields; a very doubtful inhabitant of the Isle of Wight, now apparently extinct. In the area of Carisbrook Castle; Dr. Stokes in Withering's Bot. Arrangem. Certainly not to be found there now, since I have made repeated search for it myself, as have likewise persons residing at the castle, who show the ruins to strangers. It will probably be found hereafter in some part or other of the county. I have never seen it but on old walls or banks contiguous to ruined houses, and have gathered it on walls at Winchelsea and at Stapleton in Radnorshire. *T. Botrys*, which Mr. Borrer tells me grows certainly wild on Box Hill, Surrey, may with reason be expected on the chalk hills of

this county, being a species indigenous to most parts of central Europe, as France, Germany and Belgium.

Ajuga reptans. In moist woods, thickets, pastures and shady places; abundantly over the island and county. Var. β . Flowers light purple, pink or flesh-coloured; rare. In Quarr Copse and Apley Wood, near Ryde. Var. γ . Flowers pure white; occasionally. A patch in the wood adjoining to Calbourne New Barn (New Barn Hummet), June, 8th, 1844, and observed in the same place not unfrequently the following year. I have also picked this variety near Ryde. Whitedell; Mr. W. L. Notcutt. "Abounds in the Isle of Wight;" Sm. in Engl. Fl., but this can scarcely be said of it at the present day, although somewhat more frequent than the flesh-coloured form with us.

—— *Chamaepitys*. In dry, sandy, gravelly or chalky fields, and rough, stony ground; very rare? A dubious inhabitant of the Isle of Wight, reported to me as growing about Week farm, near Niton, along with *Melampyrum arvense*, but though a very likely station to produce it, this species has never occurred to my observation there or elsewhere in the island. On Longwood Warren; Rev. Messrs. Garnier and Poulter in Hamp. Repos. !!! The plant grows here on the bare stony gravel or diluvial deposit, but would seem to be uncertain in its appearance and in amount, as I have not succeeded in finding more than a few very small specimens, but have seen larger and more abundant ones from thence in the possession of others. About Old Alresford; Mr. Wm. Pamplin. Abbotston Warren; Mr. J. Forder. When last at Alresford, I learnt from Mr. F. that the plant is very capricious in this station also, nor have I myself seen it in or from that neighbourhood.

N. B.—*Hyssop* (*Hyssopus officinalis*, L.), is perfectly and abundantly naturalized on the ruins of the beautiful and romantically situated Abbey of Beaulieu in the New Forest, particularly on the walls and in the area of the cloisters; now as fully established and permanent as the wall-flower, calaminth, pellitory, and other mural plants that flourish on the picturesque remains of that once "proud abbaye." Still partially in flower, October 9th, 1849.

Verbena officinalis. Of extremely common occurrence throughout the county and Isle of Wight, on dry banks, along hedges, road-sides, in waste ground, churchyards, &c., also, but less frequently, in pastures and woods remote from habitations. A truly indigenous English plant, although found most abundantly in the lower enclosed and inhabited country, yet occasionally haunting very sequestered spots.

Woods at Swainston, Ape's Down, &c. Rather rare about Ryde, but extremely common in the island generally. Plentiful about Winchester and elsewhere on the chalk.

Pinguicula vulgaris. In bogs; rare? Not yet detected in the Isle of Wight. On Titchborne Common; Mr. William Pamplin and Mr. J. Forder. Gathered there in tolerable plenty in flower and fruit June 22nd, 1849!!! In a chalk-pit! close to the railroad at Brambridge, near Otterbourne; Mrs. Delmè Radcliffe in the herbarium of Miss G. E. Kilderbee! Near Cranberry (Cranbury?) and Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. In the marsh by the Itchen, near Otterbourne, called the Common Mead; Miss A. M. Yonge. Bransbury Common, near Bullington; Rev. D. Cockerton. Mr. Curtis thinks it grows with *P. lusitanica* in the Boscombe Chine station, given below for that plant. The common Butterwort doubtless exists in other parts of Hants, but is much less frequent in the south than in the north of England.

——— *lusitanica*. In spongy bogs and moist heathy places, rare, but apparently less so than the preceding species. First found in the Isle of Wight in July, 1839, by Miss G. E. Kilderbee, on a piece of boggy ground called Little Moor, just below Cockleton farm, near West Cowes, in considerable plenty!!! On Colwell Heath, Freshwater, but sparingly. These are the only stations known to me at present in the island for this truly western and maritime species, which attains in this county its most easterly English limit. Abundant at the wet base of the cliffs at the mouth of Boscombe Chine, near Bournemouth (the fashionable watering place five miles west of Christchurch); Mr. Curtis (Icon. ex loco in Brit. Entom. vol. viii. tab. 341). "In several of the boggy places on Shidfield Common (near Wickham), above Mr. Denny's, but farther south from the road, below a bank in wet ground, and also in wet ground below (*i. e.*, south) of the church;" Miss Hawkins. I suspect this station, from its rather inland position, may really belong to *P. vulgaris*. In bogs near Stonham, and in places a little north of Southampton; Sir J. Banks in Bot. Guide. Townhill Common (Southton?); Mr. Winch in New Bot. Guide. According to the authors of the old 'Botanist's Guide,' the species is stated to be "common in this county" on the authority of Hudson, probably from his verbal testimony, as Hudson does not say so in the 'Flora Anglica,' and the assertion is scarcely a correct one, certainly not so as respects the county at large, since it is only on and near the coast that this species of *Pinguicula* is to be found at all.

Utricularia vulgaris. In clear ditches, drains and pools, also in peat holes, but very rare in the Isle of Wight, and apparently equally so in mainland Hants. Ditches in the marsh at Easton (Freshwater Gate) plentifully; Mr. W. D. Snooke in Fl. Vect. !!! I find it there in several of the drains or ditches abundantly, but have never succeeded in obtaining it in flower, nor have I any other county station to record at present for a species which can hardly be supposed absent from or even very rare on the mainland division of it.

———— *minor*. In similar places with the last, and as regards the Isle of Wight equally uncommon. Abundantly in a ditch in the meadows immediately below Mr. Jacob's farm at Langbridge, by Newchurch, but flowering very sparingly, July 5th, 1842. Profusely in the same place in September last, forming dense masses, but not appearing to have blossomed at all this season. It would seem to be more frequent, like all our other aquatics, on the mainland part of the county. Near Heron Court (by Christchurch); Hon. C. A. Harris in Curtis's Brit. Entom. vol. viii. tab. 343. Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamps. Repos. Titchfield Common; Mr. W. L. Notcutt! *U. intermedia*, by far the rarest of our three British species, occurs in peat holes in Dorsetshire (Purbeck, I think), and will probably be found in the adjoining parts of Hants on Poole Heath, or on the extensive moorlands of the New Forest district, about Ringwood, Christchurch, &c., as well as on the eastern forests of Bere, Wolmer and Alice Holt.

Primula vulgaris. In woods, thickets and groves, on banks, under hedges and about the borders of fields, also in open meadows and pastures; in profuse abundance in all parts of the Isle of Wight and mainland Hants. Var. *α*. Flowers pure white, with a yellow eye. Occasionally about Ryde. I have gathered it in Whitefield Wood, and various other places in this neighbourhood, I think also, in Quarr Copse. In Symington Copse, between Somerford and Medham farms, near Cowes, in one spot abundantly. Near Landguard farm, by Shanklin; the Miss Herons!! Very fine and plentiful in a copse near the Medina, by New Fairlee; Mr. G. Kirkpatrick. Var. *β*. Flowers bright purplish red; rare. Wood between Steephill and St. Lawrence; Mr. Albert Hambrough!!! where this beautiful variety is truly wild, and growing in a clump of considerable size. In a field by Morton House; Dr. Salter (wild?). I found it some years back abundant on banks in the grounds at Montpellier House, Ventnor, but probably disseminated from roots originally planted, the variety being frequent in gardens. Var. *δ. caulescens*. Scape umbellate,

flowers deeper yellow. In copses occasionally. In a copse betwixt Shanklin and Bonchurch I found in April last two roots of this variety. The copse was full of primroses, but not a single cowslip was to be seen on or near the spot, the leaves were truly those of the primrose, and excepting in the umbellate flowers and their somewhat deeper colour, the plants differed in nothing from the ordinary primroses which grew around them. In this form we perceive the first approach to the cowslip structure, of which it possesses two of the attributes, the umbelled arrangement of the peduncles, and deeper tinted corolla. It is, in fact, the stepping-stone from the simple primrose to the var. β . of the following species (*P. veris*). Under cultivation, and occasionally in the wild state, the primrose sends up a single erect stem various in height, bearing an umbel of reddish or brown-edged, often richly-coloured flowers, the well-known Polyanthus of our borders, with all its beautiful, but endless varieties. The flowers of the wild polyanthus primrose are usually liver-coloured, as we see them become in poor or neglected garden soil. This form of the primrose I have gathered in Sussex (near Hastings), but have not met with it in the Isle of Wight myself, although it has occurred here to Mr. Albert Hambrough. At no season, perhaps, is the primrose wholly out of bloom in this county, unless during the latter summer and earlier autumn months; for, as it is the last flower of spring to retire at the approach of fervid summer's gayer throng,—

—————pale primroses

That die unmarried ere they can behold
Bright Phœbus in his strength,—

so is it the first returning to await in hopeful anticipation through the waning year's long and dull decline, the brighter days that follow on the birth of the next. A bunch of primroses on New Year's morn is a gift, from the mildness of our winters of late, hardly more thought of as a rarity than a nosegay of spring daffodils or a bouquet of sweet violets at Lady day.

Primula veris. In meadows, pastures, woods, on dry banks, chalky slopes and downs; more local than the primrose, but abundantly distributed over the entire county and Isle of Wight. Rarely seen about Ryde; in fields near Quarr Abbey and the Spencer road, sparingly. Frequent about Brading and Yaverland, in fields at Ashey, Nunwell, &c. About Shanklin, Newchurch and Appuldurcombe. About Carisbrook Castle on the walls and glacis. Very common

along the Undercliff at Eastend, Bonchurch, Ventnor, Steephill, &c. Very fine on grassy slopes at Niton, to the westward of that village, everywhere about Thorley, and in various parts of Freshwater. Generally dispersed on and at the base of the central chalk range, on the downs, and in the woods that partially clothe their slopes, as about Idlecumbe, Buccombe, Chillerton, Shorwell, &c., in the greatest plenty. On mainland Hants the cowslip occurs abundantly about Winchester almost everywhere. Frequent about Basingstoke, at Hackwood Park, Maple Durwell,* and common in pastures at Nately, &c. In the north-west of the county at King's Clerc, &c. Var. *β. elatior*. Limbs of the corolla flat or flattish. *P. elatior*, *With.* (not Jacq.). Not uncommon intermixed with *α.*, into which it may be seen so insensibly passing that many individuals appear exactly intermediate betwixt both forms. Near Brading, and in various places between Newport and Shorwell. At Steephill not unfrequent. Very common in meadows about Thorley. At Swainston; the late Lady Simeon. Meadow betwixt Nunwell New Farm and the down; frequent; Dr. T. Bell Salter. On visiting the field with Dr. S. in May last not a single oxlip could be found amongst thousands of cowslips, which would seem to show that the former is not of equal permanency with the latter. Probably of equal frequency over the county. About Basingstoke, at Chingham, &c., where the poor people transplant them into their gardens. The oxlip is occasionally found in copses and meadows with the common primrose, where a cowslip does not grow within miles of the place. In *P. veris elatior*, the calyx is longer, narrower, with more acute segments than in the cowslip, in which the calyx surrounds the corolla like a loose bag, open at the mouth, and considerably inflated, not closing around the tube as in the oxlip. The flowers of the latter are nearly inodorous, though occasionally very sweet scented, and the leaves have not the same contraction towards the middle, as in the cowslip.

The oxlip has been thought by many to be a hybrid betwixt the cowslip and primrose, but conceding the point to those who still insist on keeping the two last separate, from what we know of the modifications to which both are subject, and by which they as it were anastomose in the polyanthus, it is reasonable to conclude that the oxlip is the primary deviation from the cowslip to the primrose form, and an advance half-way from the cowslip to the polyanthus, which last is itself pretty exactly at the point of structural equidistance

* Pronounced Mapple Durwell by the natives.

between *P. veris* and *P. vulgaris*. The specific identity, however, of the cowslip and primrose being once admitted, the notion of the oxlip being a mule production' (to which its occurrence in localities producing only one or other of the plants is a solid objection) falls to the ground immediately. The cowslip may be regarded as a contracted, and, so to speak, concentrated, form of the primrose, with smaller leaves and flowers, which last are more highly coloured and more powerfully scented, the sulphur yellow of the latter becoming exalted into golden yellow, and the five tawny watery rays around the orifice of the tube heightened into as many well-defined, deep orange dots; the peduncles and calyx segments shorter, the limb of the corolla contracted, and hence cupped or concave, and the leaves constricted in the middle, each of these differences denoting a concentration or abridgment of the organs of the entire plant, displaying itself exactly in proportion to the degree in which the specimen recedes from the typical primrose towards the normal cowslip. In the words of Mr. H. C. Watson (*Phytol.* iii. 44), which express my own sentiments on the subject, "Even those botanists who refuse faith in the carefulness or exactness of the experiments on record, may see with their own eyes that the intermediate links do exist (between genuine primroses and cowslips). Indeed, they may be raised by any body, may be seen in many gardens, or may be found wild by diligent search. Nevertheless, while I see no escape from the necessity of doing so, I am still somewhat reluctant to place cowslip and primrose as a single species. The fact, once fairly admitted, of such extensive varieties of a single species, must throw doubt upon thousands of supposed species as they now stand recorded and described in books." The question of the specific identity or diversity of the primrose and cowslip, with all the light apparently thrown upon it, is still beset with difficulty; and I see no more plausible way of solving the problem than by placing these two plants in the category of what are called permanent races, in each of which certain individuals are found evincing a tendency to pass over reciprocally to their opposite limits of structural divergency, the change in each individual being more or less complete or imperfect according to the force or feebleness of the nixus impelling it to deviate towards either extreme, the impulse itself dependant on, or influenced by, soil, climate, or occult causes beyond our present ken and inquiry. It seems placed beyond doubt that the seeds of the primrose are capable of producing cowslips and every intermediate grade betwixt these two, or in other words, all the puzzling varieties to which we give the name of oxlip;

it is also indisputable that roots of the primrose have been seen bearing both cowslips and oxlips along with their own proper flowers, yet the tendency to metamorphosis would appear to be very strongly exerted towards the cowslip termination of the series, and very feebly in the direction of the primrose extremity, as I cannot call to mind a single recorded instance of the seed of a genuine cowslip reverting to the absolute simple primrose of our hedgerows. The effect of cultivation on the *Primula* seems that of causing it to oscillate betwixt the extreme types in various degrees, as may be seen from the very interesting, and, to myself, convincing experiments of Mr. H. C. Watson. In one of these trials (*Phytol.* ii. 217), a caulescent variety of *P. vulgaris*, but approaching nearer in character to the cowslip than to the primrose, produced eighty-eight seedlings, five of which proved genuine cowslips, twenty true primroses, and the remaining sixty-three a sliding series of intermediates betwixt cowslips and primroses. Here a middle form was selected, and it is somewhat remarkable that with a leaning in the parent towards the cowslip conformation, the progeny should tend to assume the features of the primrose. In another experiment (*Phytol.* ii. 852), a true cowslip being taken, the results were less satisfactory, as but a very few of the seedlings flowered. As far, however, as could be seen, the entire progeny retained the main characteristics of the parent cowslip, with just that degree of deviation towards the opposite or primrose type which might have been anticipated;—they became oxlips. I would beg to suggest to Mr. Watson a repetition of this latter experiment, and that one of the resulting oxlips be tested in like manner with the subject of the former trial, in order to see whether the series might be carried on as in that, to the production of genuine primroses and cowslips from the same intermediate form, but produced by culture from an extreme type. The primrose, it is well known, is absent from all the interior regions of northern Europe, where the cowslip is indigenous; it would be very desirable to obtain cowslip seed from these parts, say Moscow, for example, and try whether the primrose type of the species might not be derivable from it in our maritime climate by the process of cultivation just alluded to. This would settle the question, if it be not so already in the mind of every unprejudiced person, beyond all further controversy, were it not that primroses and cowslips are so different to common eyes and in popular belief, from our earliest dallies with them in our infant rambles, and our first affections so bound up with their individuality, that overpowering indeed must the evidence be that could induce the mass of mankind to forego their reliance on the

unquestioned faith of their forefathers and the creed of their childhood, and consent to believe in their identity.

The plant now regarded as the true *P. elatior*, *L.*? and of Jacquin, and first formally brought before the notice of British botanists in 1842 by Mr. H. Doubleday, who discovered it in wet meadows at Bardfield, in Essex, and published it in this journal (*Phytol.* i. 204) as probably the genuine plant of that name of the German botanists, has certainly much the air of a distinct species, yet do the observations of Mr. H. C. Watson (*Phytol.* i. 1001) tend to throw doubt on the fact, he having, like myself, "seen exceptional instances to all the characters (taken singly) by which this plant is distinguished from *P. vulgaris* and *P. veris* in Mr. Babington's Manual; the specific character drawn out by that author being quite accurate, but not invariably applicable." On the 19th of last April I visited Bardfield with the view of seeing and procuring specimens and roots of the plant in its native locality, when the impression I received from the sight of some acres of meadow covered with it in full flower, was, that of its being a third and probably equally permanent race or variety of the same *Primula* of which our primrose and cowslip are co-ordinate representatives.

The Bardfield *P. elatior* is admirably depicted in *E. B.* vol. xv. t. 513, doubtless from eastern county specimens, as they were communicated to Sowerby by the Rev. Mr. Hempstead, who, I believe, resided in Essex. The leaves of the Bardfield oxlip exactly resemble in general those of the cowslip, but in many of my specimens they are as much like those of the primrose, tapering, as they do, gradually into the foot-stalk without any contraction or abruptness, and as they are sometimes seen to do in the cowslip also. The calyx in most of my specimens is close, narrow and nearly cylindrical or tubular, being but slightly ventricose or inflated, a little shorter than the tube of the corolla, acutely five-ribbed and angled, the teeth shortish and mostly acuminate, broader in proportion than those of the primrose, but in some of the specimens the calyx makes a considerable approach to that of the primrose in becoming ovoid and ventricose. The throat of the corolla is remarkably open, and free from those folds, plaits or puckers, giving the appearance of a slight crown or border to the tube, often so conspicuous in the primrose,* being, in

* Mr. Watson thought the want of these folds might prove a good character in the Bardfield oxlip, but they are often very indistinct or wholly obliterated in the primrose itself, and still oftener in the cowslip, the throat of which is much less contracted than in the primrose.

fact, funnel-shaped within and without, somewhat as it is in *P. Auricula*. The limb of the corolla is sometimes flat, more usually cupped or funnel-shaped (another point of resemblance to the cowslip), and in colour intermediate between that and the primrose, as we usually see it in our commonly so-called oxlips. The flowers are pleasantly, but not powerfully scented, and are drooping (at least the outer ones) as in the cowslip, of which the corolla has less the form than of the primrose, but is hardly more than half the size of the latter, and the segments are less rounded or more abrupt, and do not overlies each other, but are separated by an evident space their entire length in most instances, an appearance which the umbellate variety of *P. vulgaris* often assumes, and which cannot therefore be held distinctive of the Bardfield plant. The scapes differ much in degree of hairiness, but in general are very densely clothed with woolly pubescence. In the length of the style and position of the stamens this plant varies like others of the genus, and indeed is too much like those old and early favourites, the primrose and cowslip, to be satisfactory to the lovers of broad, tangible, immutable distinctions. It must, notwithstanding, be allowed the merit of being a well-marked form, as permanent probably as either of its congeners, but I have seen some varieties of the latter that have looked very like the Bardfield plant, and the fact of its growing alone, unmixed with common cowslips or primroses, is no greater proof of specific difference than in the case of these two last, which, as is well known, will overspread whole districts, flourishing side by side, or arrogating one or the other exclusive possession of entire provinces or even kingdoms. Gaudin* remarks of *P. elatior*, "*Priori (P. acauli) utique nimius affinis, ut in speciminibus quibusdam characteres diagnostici fere omnino evanescent.*" He might have added that it comes as near to *P. veris* as to *P. acaulis*, and is almost as exactly intermediate betwixt them as are many of our false oxlips. The same excellent botanist notices the extremely acute calyx segments of *P. elatior*, "*calyce acutissimo,*" as part of his specific character. The only tolerably certain figure I can find of *P. elatior* in the works of the older botanists is that of Clusius, '*Rariorum Plantarum Historia*,' p. 331, left-hand figure. That of '*Flora Danica*,' tab. 434, may admit of doubt.

Hottonia palustris. In ditches, drains and ponds. To present appearance an extremely rare plant in Hants, and certainly not native to the Isle of Wight. Abundant in a pool called the Lake, in a green

* Fl. Helv. ii. p. 84.

lane at Aldershot, near Farnham; Mr. W. O. Newnham !!! This, the only Hants station as yet known to me for the above beautiful aquatic, is just within our limits, being close to the west side of the stream called the Blackwater, which separates Hampshire from Surrey. It will doubtless be found in other quarters of the county, being not unfrequent in many parts of Sussex, Surrey and Middlesex, and has indeed been indicated to me with some doubt by Miss L. Minchin as observed by her at Soberton, on the north of the Forest of Bere. The American *H. inflata*, which I have gathered in the States of Rhode Island and Georgia, though vastly inferior in appearance to the European species, from the small size of its white, inconspicuous flowers, hardly larger than in our *Samolus Valerandi*, and somewhat resembling them, is a most singular plant, the scapes being swollen or inflated between the verticils to the thickness of the finger, and having the aspect of being constricted at intervals by tightly-drawn ligatures. If this be a provision for floating the flower-scapes, it would seem to be less needed in the American than in our own species, for the former grows freely rooting on wet mud, whilst the other never, I think, flourishes except where the lower part of the plant is entirely submerged.

Lysimachia vulgaris. In wet or boggy meadows, thickets, osier-beds, on ditch-banks and about the margins of ponds, rivers and brooks. Abundantly in many parts of the Isle of Wight, but rather locally distributed, and by far the most common in East Medina. In various parts of Sandown Level, and throughout the valley of the East Yar from Yarbridge to Horringford Bridge, in ditches and swampy thickets, as about Newchurch, Alverstoke, Lake and Blackpan Commons, &c., in great plenty. Along the Medina River, in some places in profusion, especially between Rookley and Cridmore, on the Wilderness, &c. Very common about Godshill, by Bagwich, at Bridge and Budbridge, Bowbridge, &c. Marsh at Easton, Freshwater Gate. In Pan Moor, by Newport (Mr. G. Kirkpatrick), and numberless other places. Extremely common in mainland Hants, at least towards the south coast. At Bishop's Stoke, Southampton, Winchester (about King's Worthy, &c.), Petersfield, and elsewhere in East Hants. In vast abundance, almost covering some of the boggy meadows nearest the shore to the west of Alverstoke, near Gosport. Bog on Titchfield Common. Plentiful in West Hants, in the New Forest and Christchurch hundreds, about Boldre, Lymington, in the Avon betwixt Christchurch and Ringwood. Most profusely about Sowley Pond, a fine sheet of water about three miles east of Lymington, and in all the

low meadows and pastures in the greatest abundance about Sowley, Eastend, &c. I have received notices of its occurrence from several friends and correspondents, but all these stations being in the above mentioned districts of south Hants, it is needless quoting localities for a plant so universally distributed and abundant as this. Probably equally common in the north of the county, although my notes contain no memoranda of its having been remarked in that quarter by myself or others. In very shady, wet thickets the leaves are sometimes deep green, shining and glabrous above, the whole plant extremely luxuriant, in which state I have gathered it between Apse and Ninham, near Shanklin, above six feet in height. The beautiful variety having the base of the corolla fulvous within, and red or orange stamens, is frequent on the Wilderness, and elsewhere in this island. Capsules in some situations not perfected, in others copiously matured, 5-10 valved?, usually, I think, indehiscent. The numerous reddish or cream-coloured, angular seeds are covered with a friable mealy coat (testa), giving them the aspect of little fragments of chalk or pipe-clay.

Lysimachia Nummularia. In damp meadows and pastures, on ditch-banks, by stream-sides, the margins of ponds, and in other watery situations, but not common. Not yet ascertained to be a genuine native of the Isle of Wight. Found a few years since in some abundance by Mr. Wm. Jolliffe, groom to R. Milligan, Esq., of Ryde, in a field exactly opposite Lord Spencer's house, growing in a cavity made for planting a tree !!! The hole has since been filled up, and the plant destroyed, which, if not designedly introduced, had established itself there from some neighbouring garden. Above the shore near West Cowes; Rev. W. H. Coleman, but who is not certain of the correctness of his observation. About the edges of the pool in which *Hottonia palustris* grows at Aldershot, near Farnham. Damp meadow ground in the Duke of Wellington's park at Strathfieldsaye, June, 1848. Wet ground by the Boldre River, just below Brockenhurst Bridge, July, 1849. Netley Wood and Selborne; Miss L. Sibley. Side of Titchfield River; Mr. W. L. Notcutt. Probably dispersed over the entire mainland of the county, but its apparently total absence from this island cannot be accounted for by the want of places congenial to its growth. A favourite plant with the class of "window gardeners" in London. The Latin name was anglicized into Herb-twopence by Turner, from a fancied resemblance he perceived in the leaves to (silver) pennies, "by coples one against another." The same old herbalist first imposed the name of Spindle-tree on *Euony-*

mus europæus, for which he informs us he could find none in English at that time, a fact that should teach us caution how we assume a tree or shrub not to be indigenous because unfurnished with any ancient or vernacular name. In like manner we owe the name of Pasque-flower for *Anemone Pulsatilla* to Gerard, who was "moved" thereto, as he informs us, from its flowering about Easter.

Lysimackia nemorum. In moist shady places, woods, thickets, groves, on damp hedge-banks and by the grassy margins of rills, &c.; frequent over the county and island. About Ryde, in Quarr Copse, Apley Wood, St. John's Wood and elsewhere, frequent. Plentiful in woods near Appuldurcombe and along the Wootton River. Apse Castle, near Shanklin, Parsonage Lynch Newchurch, and many other places. In the membranaceous, pellucid, globose capsules, having five valves, but mostly opening transversely; in the subhemispherical seeds, rough with wart-like and finally chaffy or scaly granulations; in the free stamens, and its general structure and habit, this plant is as much an *Anagallis* as a *Lysimachia*, or even more so.

Anagallis arvensis. In cultivated and waste ground, corn-fields, on dry banks, by way-sides, in pastures, woods and under walls, &c.; abundant in all parts of the county and Isle of Wight. Var. β *carnea*. Flowers pale pink or rose-colour, with a purple eye. Under the cliff a little way from the Chine, Shanklin, July, 1842. Border of a field betwixt Weeks's and Little Smallbrook, near Ryde, 1837; Miss T. Price! but I could not find it the following year. On a piece of waste ground at the upper end of Dover Street, Ryde; Miss Lucas!!! Field near Shanklin, by the footway from thence towards Luccombe; Miss Kirkpatrick!!! Near Barnsley farm; Dr. T. B. Salter!! Var. γ *cærulea*. Flowers sky-blue. A. *cærulea*, *Sm.* Rare in fields, &c. Field between Westridge and St. John's, October, 1839. Hedge-bank in Quarr Copse, a single specimen; the dowager Lady Knowles! Field at St. Clare, near the sea, 1844; the Lady Catherine Harcourt. Sandown, on a piece of waste ground near the sea; Miss S. Lovell! At Bonchurch; Dr. Martin. Near Christchurch; Mr. J. Hussey. I have no other mainland stations as yet to record for either of the above varieties.

In my Isle-of-Wight specimens of γ . the stems are equally procumbent, and the whole plant, with the exception of the rather smaller and differently-coloured flowers, in all points exactly similar to the common scarlet kind, amongst which it was growing. In both, the edges of the corolla are finely fringed and crenulate, and that in an equal degree. The leaves of the blue pimpernel are often lanceolate,

as I have gathered it at Cobham in Kent, but this character is inconstant, the leaves in the specimens near Ryde being as broadly ovate as in the usual or normal state of the plant. Mr. Leighton has remarked the same of this variety in Shropshire. In the white or pale rose variety β . the corolla is also smaller than usual, or about the same size as in γ .; in other respects the plant does not differ from the common red form. The absolute specific identity of the three forms of *A. arvensis* here mentioned has been established beyond all controversy by the experiments of Professor Henslow (see Loudon's Magazine of Nat. Hist. iii. p. 537). I have myself seen the cultivated *Anagallis* in the garden of the Rev. Wm. Sherson, at Yaverland, bearing flowers of a bright blue on the same stem with those of the flesh-coloured variety, of which there was an entire bed. The change from pure red to simple blue (both primitive colours) is, I believe, very uncommon in Nature's chromatic sportiveness, and it is perhaps to the flowers of the pimpernel that we should look for the best chance of getting a correct idea of that anomalous colour, sky-blue scarlet, of which most persons must have heard, but which very few indeed can have seen. The flowers of this plant often undergo at the close of autumn, or in wet seasons, from the deficiency of light and heat, a remarkable transformation, the corolla becoming cleft to the very base or pentapetalous, the segments rounded, much shorter than the calyx and wholly green or partially coloured, and the stamens smooth. Sometimes the calyx is converted into a leafy whorl, the capsule becomes five-angled or is itself turned into a bundle of leaves. All these changes I remarked in the wet autumn of 1841, on specimens from fields above Sandown Bay. They are also noticed by Gaudin (Fl. Helv. ii. p. 67, ad calcem), who observes that the seeds of the common scarlet *Anagallis* are fatal to small birds, which eat those of the blue variety (held by him distinct) with impunity.

Anagallis tenella. In boggy, springy or peaty ground, by the sides of drains and rills, amongst the short herbage of moist heaths, commons, and in woods; very frequent in the Isle of Wight, and in many other parts of Hampshire, at least towards the coast. Near Ninham farm, and in a field near Weeks's, by Ryde. Abundant on slipped land near Niton, especially betwixt Knowle and the Sandrock Spring, fringing the margin of a little stream descending to the shore from the cliffs, and where my friend George Kirkpatrick, Esq., and myself found a variety with pure white flowers, July 9, 1839. Bog at Cockleton, near Cowes. On Lake and Blackpan Commons, in plenty. Most abundantly in a moory meadow close to Stone farm, near New-

church, and on moors about Rookley and Godshill plentiful. Boggy ground near the shore between Norton and the preventive station, Freshwater, in plenty. I find it here and there in a great variety of other places. In Luccombe Chine, a very little way from the path on the left going down from the sea, in great plenty; Miss G. E. Kilderbee! Heath at Colwell (where I find it) and many other places in the parish of Freshwater, in plenty. Apse Heath; Mr. W. D. Snooke (in Fl. Vect.) Very common, I have reason to believe, over the New Forest and Christchurch hundreds. Moors about Bournemouth (1849), and frequent on the moory heaths of West Hants generally. I feel pretty confident of having seen it on Petersfield Heath and on Wolmer Forest. Boscombe Chine, near Bourne; Mr. J. Curtis in litt. (and Brit. Entom. cum icone) !!! Droxford Forest; Rev. E. M. Sladen. Itchenstoke; Miss L. Legge. Forest of Bere; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Titchfield Common; Mr. W. L. Notcutt. Short Heath, near Selborne; Dr. T. B. Salter!!! This most elegant and delicate plant probably becomes rarer in the north of the county, or more remote from the sea, as I have no localities from my own notes or from the observations of others to give for its occurrence in that quarter.

Centunculus minimus. In damp, sandy, gravelly places on heaths, &c., often with *Radiola Millegrana*; probably not rare, but made to appear so from its extreme minuteness. Near Heath farm, by Newport. At the foot of Bleak Down, by the junction of the Chale, Niton and Godshill roads. Heath at Colwell, plentifully; Mr. W. D. Snooke (in Fl. Vect.)!!! On Shortheath, near Selborne, Sept. 1848. On wet gravel betwixt Boldre village and Royden farm, Oct. 10, 1849. Near Christchurch; Mr. J. Hussey (in litt.)

Glaux maritima. In salt-marshes, creeks and ditches, and in brackish meadows near the sea; very common in the Isle of Wight and along the opposite shores of Hants. Most abundantly in the meadows behind Ryde Dover, and sparingly on the Dover itself, if not now destroyed by buildings. Mouth of the Wootton River in plenty. Abundant by the Medina, above West Cowes, and in the meadow nearest the sea at Freshwater Gate, also by the marshy sides of the Yar under Beckett's Copse. In Gurnet Bay; Miss G. E. Kilderbee!!! In Portsea Island, and along the coast of Hampshire so generally that I have neglected noting down special localities. Shore near Cams, and near Quay (by Fareham); Mr. W. L. Notcutt. Petals said to be sometimes present in the south of Europe.

Samolus Valerandi. In wet, marshy places, low meadows, by

brooks, the sides of drains and ditches, also in moist woods; by no means rare in the Isle of Wight and the parts at least of Hants adjacent to the coast, being more frequent in the vicinity of brackish than of fresh water. In the marsh ditches behind the Dover, Ryde, here and there. Plentifully in the boggy part of the wood called Chapel Corner Copse, on the west shore of the Wootton River, at its mouth. More common in Freshwater Island* than elsewhere in the Isle of Wight. At Norton. Plentiful in some of the marsh ditches at Easton, and in salt-marshes along the Yar, and about a little pool in a meadow not far from Yarmouth Mill. Pretty abundant on the boggy parts of Colwell Heath, at its upper end. On the beach at Wolverton, by St. Lawrence, near a spring; the late Mr. Samuel Hailstone, jun. ! Near Blackgang; Miss G. E. Kilderbee ! Blackgang Chine; Mr. J. Curtis in Brit. Entom. vol. iv. tab. 154. Banks in Colwell Bay and in the marsh at Freshwater Gate, plentifully; Mr. W. D. Snooke in Fl. Vect. !!! Ditches at Schoolhouse Green, Freshwater; Mr. Charles D. Snooke in litt. In a low, marshy meadow at Keyhaven, near Milford. In plenty in one of the boggy meadows behind Stokes Bay, to the westward of Alverstoke. Hill Head; Mr. Robinson in Mr. W. L. Notcutt's Cat. of Plants of Fareham in Phytol. ii. 211. The present species is stated by writers to occur in almost all parts of the globe, but this must be understood with considerable limitations. It is certainly not a very northern plant, and many of the boreal countries of Europe want it altogether. In America it would seem to be wholly absent, the *S. Valerandi* of American botanists being a very different species, long confounded with our own, and now called *S. floribunda*. Before I was aware of the separation, I was struck with the difference of aspect in a *Samolus* I found in Alabama, in wet woods along the Mississippi, and about Carrollton, by New Orleans. *S. floribunda* differs from *S. Valerandi* in its much and diffusely branched stems, shorter, less erect and subpaniculate racemes, in its very slender, filiform, more spreading and generally straighter pedicels, and notably in its far smaller flowers and capsules, the former very minute, scarcely half the size they are in the European plant, the corolla but little exceeding the calyx in length. The leaves are described as obtuse, and so they often are, but in the plant

* The western extremity of the Isle of Wight, insulated by the river Yar, is called Freshwater Island in old maps, as the eastern end, though less perfectly cut off by the estuary of Brading, was called the Isle of Bembridge, terms which, though not now in common use, very conveniently serve to designate these two well-defined districts.

as I find it at Carrollton all the leaves, even the very lowest, are more or less acute, the middle and upper obovate-lanceolate, and very distinctly pointed, of a thin, membranaceous texture, and bright, lucid, somewhat shining green. I have never seen specimens from the middle or northern states, but the *S. Valerandi* of Dr. Darlington's 'Flora Cestrica' evidently belongs to *S. floribunda*. The specific character of *S. Valerandi* may be thus amended: Stems simple or sparingly branched, leafy; leaves obovate-oblong, or spatulate, very obtuse; racemes many flowered, straight, simple, erect; pedicels bracteate, patent; corolla twice the length of the calyx.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
October, 1849.

(To be continued.)

ERRATA.

- P. 663, line 1, *for* "Bab." *read* "Bob."
 „ line 14 from bottom, *for* "Rockley" *read* "Rookley."
 „ line 15 from bottom, *for* "How-" *read* "Hor."
 P. 664, line 21 from top, *for* "Scome" *read* "Sconce."
 P. 665, *for* "Armfield" *read* "Arnfield."
 P. 668, line 12 from top, *for* "Gatecomb" *read* "Gatcomb."

Experiments on the Specific Identity of the Cowslip and Primrose. By JOSEPH SIDEBOTHAM, Esq.

THE communication to the 'Phytologist' by the Rev. J. S. Henslow (Phytol. iii. 651), reminds me that I have not yet furnished the readers of the 'Phytologist' with the result of some experiments on the *Primulæ* completed this season (vide Phytol. ii. 887).

In the summer of 1846 I determined to try some experiments on the specific identity of *Primula veris* and *P. vulgaris*, in imitation of those published by Mr. Watson and others, but on a much larger scale, and with such precautions that the result might be relied on. With this view I transplanted seven or eight roots of *Primula veris* from Reddish Vale into my garden; my late friend E. S. Wilson sent three plants of *P. vulgaris*, var. *intermedia* (L. C.), from the neighbourhood of Congleton; *P. vulgaris* I obtained from Bredbury Wood,

and *P. veris*, var. *major* (L. C.), from the Manchester market; *P. Jacquinii*, received from Mr. H. Doubleday, was already in the garden.

In 1847 most of these were flourishing plants, and to prevent any hybridization from the visits of insects, I protected them with glass during the early part of their flowering. The season was particularly favourable for ripening the seed, and when I came to collect I found a considerable quantity.

To prevent all errors as much as possible, I collected the seed myself, and again sowed it on beds, where no *Primulæ* had been previously grown. These I again planted out, and this year most of them have flowered, and here are the particulars.

Primula veris seed produced nearly eight hundred plants, but only four hundred and seventy-three were planted out for observation, and these may be characterized as under.

<i>Primula veris</i> , true	....	....	....	412
<i>P. veris</i> , var. <i>major</i> (L. C.)	....	....	....	27
Do. do. hose-in-hose	....	....	....	3
<i>P. veris</i> , dark-coloured	....	....	....	7
Do. approaching polyanthus	....	....	....	5
Do. do. hose-in-hose	....	....	....	1
No flowers	....	....	....	18

473 Total.

Primula veris, var. *major*, produced sixty-five plants, of which the subjoined list gives the particulars.

<i>P. veris</i> , var. <i>major</i>	....	....	....	21
<i>P. veris</i> (true)	....	....	....	9
Polyanthus of different shades	....	....	....	16
Do. hose-in-hose	....	....	....	3
Do. with leafy calyx	....	....	....	1
<i>P. vulgaris</i> , var. <i>intermedia</i> (L. C.)	....	....	....	7
<i>P. vulgaris</i> , var. <i>caulescens</i> (?)	....	....	....	3
<i>P. vulgaris</i>	....	....	....	2
<i>P. Jacquinii</i> !	....	....	....	1
No flowers	....	....	....	2

65 Total.

P. vulgaris, var. *intermedia*, L. C., produced twenty-seven, as under.

<i>P. vulgaris</i> , var. <i>intermedia</i>	....	....	19
Do. var. <i>caulescens</i>	....	....	3
<i>P. vulgaris</i> (true)	....	....	1
No flowers	....	....	4
			—
			27 Total.

P. vulgaris produced eighteen, as under.

<i>P. vulgaris</i>	....	....	....	15
Do. var. <i>caulescens</i>	....	....	....	1
No flowers	....	....	....	2
				—
				18 Total.

P. Jacquini produced thirty-two, as under.

<i>P. Jacquini</i>	....	....	....	24
<i>P. vulgaris</i>	....	....	....	1
Do. var. <i>caulescens</i>	....	....	....	1
No flowers	....	....	....	6
				—
				32 Total.

Such are the results of my experiments, which I must own disappointed me greatly, and interfered very materially with my previous ideas of specific identity: we have certainly no direct change from the primrose to the cowslip, or the reverse, but we have the change in two steps, first, from the *P. veris* to *P. veris*, var. *major*, and then from that to *P. vulgaris*, and however unwillingly acknowledged, such transition appears really to take place. The change in *P. Jacquini* surprised me much, as I had not heard of its altering in form, and my previous experiment only went to prove the contrary.

I have now a large number of seedlings of this year's growth, for the purpose of carrying on the investigation; for the present I shall say no more, but leave the above facts to speak for themselves.

JOSEPH SIDEBOTHAM.

Manchester, October 3, 1849.

Blight on Oak Trees. By the Rev. W. T. BREE, M.A.

THERE has been during the present year all about this neighbourhood a sort of blight upon many of the oak trees, in consequence of which the foliage turned colour at an unusually early period of the season. By the middle of August or before, I observed that many oaks had assumed as brown and autumnal an appearance as they commonly present at the end of October or early in November. The blight was partial only, affecting some trees, but not others. It did not appear to depend on the age or vigour of the tree, or on soil or situation. Both large and small oaks, old and young, thriving and those in decay, in sheltered as well as exposed situations, in woods and in hedge-rows, were alike subject to the disease. I have heard this premature decay of the foliage attributed to honey dew; but that can hardly have been the case; for it was common to see two oaks growing side by side and in close contact, in the same hedge-row or wood, one of which was turned to a rich brown or yellow, while the other remained in full verdure of foliage. On examining the individual leaves, they were found to be marked with irregular brown or yellow blotches, principally at the apex and the lobes round the extremities, rather than at the base of the leaf. I did not observe that the blighted leaves presented any other peculiarity, or that they had been subject to the attacks of insects (galls, oak-spangles, &c.) to a greater extent than those leaves which were in a healthy condition, and retained their usual verdure. Has the same blight made its appearance in other parts of the country as well as in Warwickshire? I may remark also, that with the exception of such trees as had been more or less stripped of their leaves by the grub in the spring and part of the summer (in which case nature invariably makes an effort to repair the loss by throwing out fresh leaves and shoots later in the season), the oaks generally have made hardly any Midsummer shoot this summer. Many thriving young oaks on the premises here, which usually make a most vigorous Midsummer shoot of a foot or more in length, have this year made next to none. I apprehend that the present year will have proved a very unfavourable one for the growth of oak timber, and that the concentric annual ring of wood representing the year 1849, will be found to be of remarkably contracted dimensions.

W. T. BREE.

Allesley Rectory, near Coventry,
October 10, 1849.

Botanical Notes for 1849. By G. S. GIBSON, Esq., F.L.S.

I HAD hoped that some one else might have furnished the 'Phytologist' with a notice respecting some discoveries of the present year, but as this has not been hitherto done, and it seems desirable that they should be recorded in its pages, for the information of botanists generally, I shall briefly describe those which have come under my observation. The first to which I refer is the occurrence of *Poterium muricatum* of Spach, *P. polygamum* of Waldstein, in the neighbourhood of Cambridge, in two different places, discovered by gentlemen in that district. Only a few specimens of it were seen, and being subsequently cut down, there was little opportunity of making observations upon it. Soon afterwards, having been informed of the discovery, I met with it in a gravel-pit at Heydon, in this county, and subsequently on grassy places by the road-side, for some distance; I also found it in plenty in a field of saintfoin, in this parish, and my friend T. Bentall informs me that he has gathered it in a field of the same plant near Halstead, which might have tended to throw some doubt on its being native, had not the Heydon locality been free from suspicion, and quite satisfactory to several of our best British botanists, who visited the spot. It is possible it may, nevertheless, have been introduced in some places, but it is very unlikely that a foreign plant should be found simultaneously in so many different places and varying circumstances. A short time after, I again met with it on Boxhill, when searching for another plant, as will presently appear, and I believe it has been found in Warwickshire; so that it will probably prove not a rare plant in chalky and limestone districts. It is likely to be overlooked for *P. Sanguisorba*, which it much resembles, though doubtless quite distinct. The following are some of the prominent differences between the two plants:—

Fruit of *P. muricatum* large, strongly winged, with its surface pitted, and the elevated margins of the pits dentate. In *P. Sanguisorba* the fruit is small, angular, but scarcely winged, reticulate-rugose, but not pitted. The calyx of the former is larger and more spreading; the heads are much heavier, perfecting more seeds. The leaves are generally more coarsely serrated, and the whole plant stronger. The hermaphrodite character of the central flowers is insisted on by some authors, but it is not very constant or certain.

The locality is generally cultivated or waste ground.

In another part of the parish of Heydon, I was much surprised and pleased to meet with *Melampyrum arvense* in considerable abundance,

in a field of tares, whether native or introduced with seed at some time, I am unable to say, but as that part of the country has not been much explored, it is not unlikely that it may be as indigenous there as in Norfolk. *Thesium linophyllum*, *Alsine tenuifolia*, *Orobanche elatior*, *Papaver hybridum*, *Melilotus arvensis*, *Fumaria parviflora* or *Vaillantii*, and other rare plants also grow here. As regards the latter, I very much doubt whether we have two British species under these names, and incline to think that all the specimens will be found alike, but to which species they are to be referred I am unable to say, not having foreign specimens with which to compare them. The plant, which is not uncommon in this neighbourhood, agrees more nearly in leaves and fruit with the figure of *F. parviflora* in 'English Botany,' than with that of *F. Vaillantii*. *Melilotus arvensis* appears to be rather the commoner species of the two in this district, and it is also common about Stortford; I do not notice that they are either of them confined to any particular situations, being found indiscriminately intermixed. It is rather surprising that there is no record of its having been more generally observed this year.

I mentioned in a former paper, having made an unsuccessful expedition last year to Boxhill, in search of *Teucrium Botrys*, which was reported to grow there; but being invited by my friend W. Borrer to accompany him in a fresh search this season, I gladly accepted the proposal, and after some time spent in examining the spot, we succeeded in finding it there, and scattered along the stony sides of the hill for some distance, and most indubitably wild. Though not in great abundance, there were a considerable number of specimens, and it is remarkable that a plant by no means inconspicuous should have so long escaped observation, in a place so much frequented, though this part may be rather secluded. It is a very interesting addition to the British Flora, but is scarcely likely to be confined to so small a space, and has been reported to have been found in another place, though not on very good authority.

In a corn-field near the hill we also gathered *Anagallis cærulea*, *Ajuga Chamæpitys*, *Lathyrus Nissolia*, *Bromus arvensis*, &c. The latter, though probably introduced, has been found in so many places, that it surely deserves a place in the British Flora, more than many corn-field and other plants which are always considered to be naturalized; but in the 'Manual' it is put in brackets, and in the 'London Catalogue' classed with the excluded species.

G. S. GIBSON.

Saffron Walden, October, 1849.

Notes on the rarer Ferns observed in a fortnight's Pedestrian Tour in North Wales; with several new Localities for Asplenium lanceolatum. By WILLIAM BENNETT, Esq.

WE arrived at the small town of Builth, in Brecknockshire, one evening about the beginning of last month. A few minutes after five the next morning found us crossing the bridge over the Wye into Radnorshire. The road to Rhayader keeps the course of the river, now reduced to a mountain torrent. Polypodium Phegopteris was first observed on some rocks on the right of the road to the posting hamlet of Llangurig, about three miles out of Rhayader. Our intention was to have crossed Plinlimmon to Machynlleth, but his highness had by this time put on a threatening aspect, and was now completely enveloped in mountain mist, so as to render the attempt indiscreet, if not impracticable to strangers, as well as useless in point of scenery and enjoyment. So after holding a few minutes' council, we determined to keep the high road, and deviate to the Devil's Bridge, in South Wales, which proved as well; for within an hour the clouds began to come down, first as gentle rain, and then increasing steadily to a thorough wet evening, swelling the watercourses we had to cross on a part of this road to a degree of inconvenience. Polypodium Phegopteris beautifully covers a wall on the right, just through the Yspitty Cynfen gate, after leaving the main road to Aberystwith, two miles before the Devil's Bridge.

The ferns of this charming locality are too well known to admit of discovering anything new. The evening had likewise gained upon us, and it was very wet. We were satisfied with visiting one of the spots for Hymenophyllum, on the Hafod Arms side of the Mynach, which the guide you are obliged to have from the inn, in order to gain access to some of the falls, said the Bishop of Winchester had pronounced to be the best fern of the district, and had called Tunbridgense, but upon examination we find to be Wilsoni. Probably both grow here. Lastrea Oreopteris was the predominant fern seen throughout this day's excursion.

Our walk the next morning extended from the Hafod Arms, direct by a mountain road or track nearly the whole of the way to Machynlleth. Over half way a little stream is crossed, forming the boundary between Cardiganshire and Montgomeryshire, or between South and North Wales. Almost the whole of this tract consists of vast, brown, moory, bare mountain, too wet for Pteris aquilina. We thence pro-

ceeded on the road to Dolgelly, which winds up for a long way among fine woods and picturesque cottages, until it opens out on the summit level, and then plunges down near the head of the solitary lake of Tal-y-Llyn, and ascends once more up a most desolate gorge, of which the perpendicular precipices of Cader Idris form the opposite side. *Polypodium Phegopteris* occurs very plentifully in many stations, on banks and stone walls, in the three counties of Cardigan, Montgomery and Merioneth, included in this day's journey.

From Dolgelly to Barmouth is a splendid walk. On the wall of the embankment, just over the bridge across the Maw, was noticed a single plant of *Ceterach officinarum*, by no means a common fern in Wales. As we knew we were approaching the famous locality for *Asplenium lanceolatum*, and never having seen this fern in a natural habitat, we commenced searching every hole, wall, bridge, and rock, and closely examining amongst the innumerable *Adiantum-nigrum*, which was growing luxuriantly all along on both sides of the road. Hundreds of the more attenuated, shrivelled, and odd-looking fronds of the last-named fern fell a sacrifice, alternately fluctuating between hope and despair of identifying the object of our search, till the second mile-stone from Barmouth was passed. Here the road somewhat ascends to round the last promontory that shuts out the view of Barmouth and the open sea beyond. Exactly at the bend of this sweep, on the wall, originally of large, loose stones, that bounds the road on the right, an almost simultaneous shout from each of our party, removed at once all our doubts and fears, and announced the prize. Here was the undoubted *lanceolatum* in abundance, perfectly unmistakeable when once seen, growing intermingled with, but predominant over *Adiantum-nigrum*. It roots very deeply in the holes and fissures amongst the stones, assisted by the length of the stipes, which renders it very difficult to get at perfect, un mutilated fronds. From the dry, sandy nature of the road, the fronds, though large, at this time were covered with dust, and of a shrivelled habit. We again met with it on the high rocks, just before entering the town, as recorded in Newman's 'British Ferns,' p. 251; and much finer and greener, on rocks and walls about the same distance on the other side of the town, towards Harlech. *Polypodium Phegopteris* was seen plentifully, and *Osmunda regalis* at one station, on this walk. The road to Harlech, and thence to Tremadoc, across the ferry of the Traeths, presented nothing fresh to notice.

The following morning was spent in ascending the great rocky eminences, which so romantically overhang the remarkably neat and

pretty Welsh town of Tremadoc. We were gratified in identifying *Asplenium lanceolatum* once more at an elevation of perhaps 700 feet. Though we saw but one single plant, of which a couple of fronds only were gathered, it was sufficient to prove the habitat; and there is little doubt this vast district of wild and lofty rock would amply repay for a longer search, with more time at command.

Our next station was Pwllheli (pronounced *Poo-thel-ly*). Here a narrow neck of land or embankment runs out to a sandy promontory, terminated by an abrupt and very conspicuous rock, altogether forming the western and southern boundary of the harbour. It was twilight when we gained this rock, which is very steep, and inaccessible on the sea-board side. Our attention was immediately attracted by something green in the crevices rather difficult to reach, which, upon pulling out, proved, to our no small delight, to be *Asplenium lanceolatum*, in the very finest condition. The darkness and time did not admit of ascertaining whether it was really plentiful on this rock; but it is a most interesting locality.

The whole of the peninsula round by Aberdaron, and through Nevyn to Carnarvon, produced nothing fresh to record, though the wild portion of the road beneath the great Rivel mountains, and the fine old Abbey Church of Clynnog, which looked as if it might have been covered with something more rare than *Adiantum-nigrum*, appeared particularly attractive and inviting.

From Carnarvon to Bangor, and thence to Conway, was performed by coach and rail, except the detour to visit the stupendous works of the Britannia tubular bridge, which does not belong to the present subject.

One day was spent on Great Ormes Head, searching for *Asplenium marinum* without success. The state of the tide was unfavourable, and after penetrating as far as we well could along the cliffs from the eastward, we returned, ascended the promontory, and came down on the other side; and then kept close along the shore until the north-western point was rounded, and we found ourselves among that sort of grand debris, precisely similar to the magnificent scenery of Fairhead on the coast of Antrim, minus the basaltic formation, among which *Asp. marinum* grows so luxuriantly. We proceeded as far as we dared, scrambling among the rocks and ruins as it were of one of the ends of the world, for ever defying the unimpenetrable waves, till the red ball of the setting sun dipped itself in ocean, and warned us reluctantly to return.

In the old trench outside the wall of Conway grows a curious va-

riegated variety of *Polystichum angulare*. On the walls of the fine old castle itself we found nothing new; though it looks as if *Asplenium marinum* might as well take up its abode there as not, if inhabiting the neighbourhood.

The next morning was occupied with the walk up the Vale of Conway. Of course *Asplenium septentrionale* was the grand object on approaching Llanrwst. We thought we identified the exact spot described at page 270 of Newman's 'British Ferns,' where that gentleman once found it in such profusion. At first we feared our unpractised eyes had missed it, never having seen this interesting little fern in a native habitat, for after much patient searching, and tracing and re-tracing our steps, we had been unable to detect anything of it; but we afterwards came to the conclusion that some "piratical botanist" passing that way must probably have destroyed it all: for on a wall in another road, somewhat further, leading to Capel Curig, one of our party in advance pounced upon a single plant, which was borne off in triumph, after all had been called to see it growing, and was sufficient to convince us that we had hardly passed it before. There was no doubt more about that spot, had we had time to continue the search. The day closed at Capel Curig.

Assisted by the very kind and graphic instructions of Professor Ramsay, whom we fortunately met at this hotel, pursuing his geological researches, the next morning found us at the head of Llyn Idwell, and "making bold for the wall of rocks" that closes up the vast hollow of Cwm Idwell, except the great chasm or rift called Tŵll Du. *Polypodium Phegopteris* and *Dryopteris*, *Asplenium viride*, *Allosorus crispus*, *Cystopteris dentata*, *Hymenophyllum Wilsoni*, with *Lycopodium alpinum*, *Selago* and *Selaginoides*, grow in profusion among and beneath the enormous masses of this wilderness of rocks, on which perhaps the sun never shines. But neither here, nor about, nor within the chasm, were we fortunate enough to light upon *Polystichum Lonchitis*. We were not aware at the time of the locality of Llyn-y-Cwn, above the chasm, as a habitat of *Woodsia*. Near the summit of the pass we gathered *Polystichum aculeatum*, a fern by no means commonly seen in Wales, and not once intermingled with *angulare*. After the descent into the Llanberis road, we visited a tier of tall, black rocks, on the left of the road to Capel Curig, a little beyond the turnpike, known as Craig Du; and on which grows a peculiar, simply pinnate form of *Asplenium Ruta-muraria*, which might readily be set down as *germanicum*, but does not agree in any other diagnostic. On an adjacent dry white rock, we found a good supply of *septentrionale*,

which we have reason to believe is tolerably plentiful in these parts, and, fortunately for its preservation, in some places quite inaccessible. For these localities we are indebted to Professor Ramsay.

The beaten ascent of Snowdon will not do for the botanist. We succeeded in obtaining a guide, who was willing to conduct us wherever we wished. We first proceeded to a lofty precipice, forming one of the western buttresses of Snowdon, called Clowgwyn Du Yrarddu (Clogwyn dur Arddu of the Ordnance Survey). Here, among the rocks and wild *débris*, between the base of the precipice and Llyn Arddu, were all the ferns we had seen in Cwm Idwell, some of them growing, if possible, still more luxuriantly, as *Asplenium viride*, and *Hymenophyllum Wilsoni* of a very large size, and tufts of *Allosorus crispus* almost a yard in diameter. From the constancy of the mountain form of *Cystopteris* met with throughout these regions, perfectly distinct in the form and cutting of the pinnules from the more southern plant we had previously known as *fragilis*, we are inclined to believe in the specific distinctness of *dentata*, which we had before doubted; but have brought home a supply of seedlings to cultivate, the result of which shall be communicated, if successful.

When on the last shoulder, in full sight of the summit, we met one of the older guides coming down, well known for his botanical lore, and especially for his knowledge, said to be exclusive, of the habitat of *Woodsia* in Clogwyn-y-Garnedd. After some chaffering to obtain information, and not without the aid of a little bribery,—for which, however, he promised to transmit us a plant if we did not succeed in finding it,—he brought us back a little to the edge of the ridge, and professed to point out the exact spot where the *Woodsia* grew, far down amid a world of rocks and precipices. All the time we did not think he meant us to find it. The absurdity of identifying by description from above one particular wet rock, when down amongst such a chaos of rocks and precipices, was apparent enough. We were determined, however, not to fail for want of trying; and luck might come in to aid. So down the Capel Curig track we went, and then deviated to the right, to get under the precipice constituting Clogwyn-y-Garnedd. It is almost needless to say, that after a tremendous scramble we had to give up the *Woodsia*; but were sufficiently rewarded by capturing several plants of *Polystichum Lonchitis*, and saw some still finer ones in places inaccessible. It is a great treat to see this truly splendid and weird-looking fern, evidently framed to brave, under its weather-beaten form, the storms of its native mountains. After rounding the little Llyn Glas below, we had to ascend the tremendous

Bwlch-y-Lacthan, to the summit, just before sunset. Here we found that the guides who are stationary at the top, having erected booths, where parties who wish to see the sun rise may now sleep, that is, lay miserably awake, had *Lonchitis* for sale at sixpence a root; a practice which, if encouraged, must soon annihilate this fine and sparingly scattered fern from all accessible habitats. They knew nothing of *Woodsia*. Since returning home, the guide, faithful to his promise, has sent by post a small root, and some fronds of a true *Woodsia*, but unfortunately so mutilated that we cannot satisfactorily determine the species.

We had bad weather at Beddgelert, which prevented our searching that interesting neighbourhood. We again had the pleasure of seeing *Asplenium lanceolatum*, at the station just half way between Beddgelert and Tan-y-bwlch. The county, however, requires correction, as stated in Newman's 'Ferns,' p. 249, being Merionethshire, not Carnarvonshire. The rock is here a slate, and the fern grows very firmly wedged in the fissures, wherever a little soil has been caught. On this rock also grows a simply pinnate form of *Asplenium Ruta-muraria*.

There is a pretty waterfall in the grounds of Tan-y-bwlch house, which are liberally thrown open to visitors with a card from the inn. The rocks and banks are covered with the most magnificent clothing of *Polypodium Phegopteris*, rejoicing in the spray. This fern must be seen in such a locality to form any just notion of its grace and beauty, and the size to which it attains, as compared with its dwarfed appearance occurring on walls and drier habitats.

We again met with *Polypodium Phegopteris* in all its pride and profusion, at the fine and romantic falls of the Cynvael, near Festiniog. The river forms a series of continuous cataracts for a mile or more, along which this fern carries the preponderance over all others. Opposite Huw Llwyd's Pulpit, a rock which steens one part of the cataract, we observed a patch of *Hymenophyllum* on the face of a rock, but out of reach, the waters being swollen, and too far off to distinguish which species, but probably *Wilsoni*, or perhaps both intermixed, as they are recorded to grow in this celebrated vale. Also a noble root of *Osmunda regalis*.

Polypodium Dryopteris was noticed on the old road half way between Bala and Corwen, on a bank on the right; and again sparingly on the rocks a little before entering Llangollen. *Equisetum sylvaticum* occurs near the first named station. We left Wales by the Llangollen-road railway station.

It will be seen by the extent of ground covered, nearly all on foot,

that this excursion must have been a very rapid one, affording little time to dwell anywhere. Much more would no doubt have been observed by practised eyes, with more leisure to investigate. The commoner ferns have not been mentioned in course, in order not to encumber this paper. The following is a complete list of all we noticed, in the order of their abundance, as agreed upon by our party of three, and as we happened to observe them throughout the whole journey.

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|-------------------------------------|-------------------------------------|
| 1. <i>Athyrium Filix-femina</i> | 14. <i>Cystopteris dentata</i> |
| 2. <i>Lastrea Oreopteris</i> | 15. <i>Asplenium viride</i> |
| 3. <i>Pteris aquilina</i> | 16. <i>Polypodium Dryopteris</i> |
| 4. <i>Lastrea Filix-mas</i> | 17. <i>Polystichum angulare</i> |
| 5. „ <i>multiflora</i> | 18. <i>Asplenium lanceolatum</i> |
| 6. <i>Polypodium Phegopteris</i> | 19. <i>Hymenophyllum Wilsoni</i> |
| 7. <i>Lomaria Spicant</i> | 20. <i>Asplenium septentrionale</i> |
| 8. <i>Asplenium Adiantum-nigrum</i> | 21. <i>Polystichum aculeatum</i> |
| 9. <i>Polypodium vulgare</i> | 22. <i>Osmunda regalis</i> |
| 10. <i>Scolopendrium vulgare</i> | 23. <i>Lastrea spinosa</i> |
| 11. <i>Allosorus crispus</i> | 24. <i>Ceterach officinarum</i> |
| 12. <i>Asplenium Trichomanes</i> | 25. <i>Polystichum Lonchitis</i> |
| 13. „ <i>Ruta-muraria</i> | |

W. BENNETT.

October 12, 1849.

Occurrence of Poterium muricatum in Warwickshire.

By THOMAS KIRK, Esq.

THIS recent addition to the British Flora occurs in various places on the slopes of the Coventry and Leamington railway. It is abundant near the Leamington station, and is more or less plentifully distributed at short intervals, till within two miles of Coventry; when it becomes a scarce plant. It also occurs in a field adjoining the Kenilworth station.

The stems appear to me rather more angular than those of *P. Sanguisorba*, from which, notwithstanding its close resemblance, it is readily distinguished by the alate angles and deeply pitted sides of the fruit. I believe it is considered identical with the Hungarian *P. polygonum* of Waldstein and Kitaibel, but at present some doubt exists on that point.

Its discovery in counties so widely distant as Essex and Warwick, is an argument in favour of the probability of its frequent occurrence;

more especially as its close similitude to *P. Sanguisorba* is doubtless the cause of its having been so long overlooked in this country.

T. KIRK.

Coventry, October 16, 1849.

Note on a List of Newbury Plants. By MRS. RUSSELL.

ON reading in the September number of the 'Phytologist' Dr. Bromfield's interesting paper on the plants of Hampshire, to the continuation of which in each succeeding number I always look forward with pleasure, I found, in a note, some criticisms on a list of plants in the neighbourhood of Newbury, touching which I would offer a few remarks. The list was chiefly drawn up by myself, at the request of a relation residing in the place, and with few exceptions comprised only such plants as I had seen with my own eyes, or had his authority for. On receiving a printed copy of the list, I was vexed to perceive that sundry additions had been made to it, for the correctness of which I had no means of vouching, although Mr. Job Lonsley, on whose authority they were principally made, is, I understand, an acute and zealous observer. I cannot wonder at Dr. Bromfield feeling staggered by the insertion of such plants as *Illecebrum verticillatum* and the others mentioned in his note, and feeling assured, as I do, of the *general* correctness of the list, I am anxious to ascertain that of these apparently doubtful admissions. On a very recent visit of a day or two to Newbury, I was promised an interview with Mr. Lonsley, but it was prevented by his illness: I still hope, however, through my friends there, to obtain the information I desire, and specimens of the plant which he considers to be the species in question. With regard to *Cnicus heterophyllus*, the error lies with me only; the plant is, as Dr. Bromfield supposes, *C. pratense*, but at the time I drew up the list was mistaken by me for its kindred species, which I had not then seen. I may take this opportunity of saying that Sidmonton, the locality given for *Doronicum pardalianches*?, is certainly in Hampshire: I gathered the plant there many years ago, but cannot now feel certain as to which of the two species it really is: it is to all appearance wild. Dr. Bromfield does not mention *D. pardalianches* as a Hampshire plant, and speaks doubtfully as to *D. plantagineum*: one of the two most assuredly grows at Sidmonton.

ANNA RUSSELL.

Kenilworth, October 19, 1849.

BOTANICAL SOCIETY OF LONDON.

Friday, November 2, 1849.—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced :—

‘Proceedings of the Literary and Philosophical Society of Liverpool during the Thirty-seventh Session;’ presented by that Society. ‘Parts 1 and 2 of Volume i, of Transactions of the Royal Society of Arts and Sciences of Mauritius;’ presented by that Society. ‘On the Destructive Power of the Scolitus destructor and Larva of the Cossus ligniperda,’ by Dr. C. J. Cox; presented by the Royal Botanic Society of London. ‘Pharmaceutical Journal and Transactions;’ presented by the Pharmaceutical Society.

British plants from Mr. G. S. Gibson, Mr. B. Wardale, Mr. F. R. Goulding, Mr. T. Moore, Rev. F. Douglas, Mrs. E. M. Jones, Mr. J. Wynne, Mr. R. Embleton, and Mr. Wing.

Mr. W. Evans, of Llanrwst; and Mr. E. Browne, of Burton-on-Trent, were elected corresponding members.

Mr. Thomas Moore communicated a paper ‘On Dr. Dickie’s Cystopteris.’—*G. E. D.*

Notice of ‘Foot-prints of the Creator: or the Asterolepis of Stromness.’ By HUGH MILLER, Author of ‘The Old Red Sandstone,’ &c. London: Johnstone and Hunter, 26, Paternoster Row; and 15, Princes Street, Edinburgh. 1849.

ABOUT nine years ago geologists were “taken aback” by the sudden appearance of a colleague, whose discoveries in the Old Red Sandstone, a deposit previously looked upon as singularly barren of fossil organic remains, opened up a new field to the investigations of the scientific, and developed facts of so wonderful and unlooked for a nature, that their discovery rendered necessary the abandonment, or at least the modification, of many a long-cherished hypothesis, and gave a new aspect to several portions of the existing systems of Geology. These discoveries received the commendation they richly deserved, from some of our most eminent geologists at the Meeting of the British Association in September, 1849; and their author, Mr. Hugh Miller, at once took the highest position among the learned, both as an original

investigator, and as an able and graphic describer of the results of his labours.

It was no light praise for such men as Murchison and Buckland to bestow upon the literary productions of a quarryman, the one, to speak of them as being "written in a style so beautiful and poetical, as to throw plain geologists like himself into the shade;" and the other, to declare that they made him feel ashamed "of the comparative meagerness and poverty of his own descriptions in the 'Bridgewater Treatise,' which had cost him hours and days of labour." Dr. Buckland further observed, that if Providence were pleased to spare the useful life of Mr. Miller, "he, if any one, would certainly render the science attractive and popular, and do equal service to Theology and Geology;" positions which have been fully borne out by the character of Mr. Miller's subsequently published volumes—'The Old Red Sandstone,' 'First Impressions of England and its People,' and more especially perhaps in his latest child, 'Foot-prints of the Creator.'

Mr. Miller has from the beginning been the uncompromising opponent of the Lamarckian theory of *progression*. Even in his work on the 'Old Red Sandstone,' published before the appearance of the 'Vestiges of Creation,' he exposes the fallacies and controverts the so-called facts of the hypothesis upon which the author of that volume builds his ingenious but most unstable edifice. In his latest publication he lashes with no unsparing hand the errors of the 'Vestiges,' and indicates the serious mischief to which an unchecked dissemination of those errors must inevitably lead, among a certain class of readers, who, in proportion as they are unable to detect the fallacies of such a work, are exposed to all the evil consequences of their promulgation. In doing this, however, Mr. Miller is careful to distinguish the mischief he is combating from the, perhaps unconscious, author of the mischief—he fights with the *book*, not with the *man* who wrote it. "I have not even felt," he says in his Preface, "as if I had a man before me as an opponent; for though my work contains numerous references to the author of the 'Vestiges,' I have invariably thought on these occasions, not of the anonymous writer of the volume, of whom I know nothing, but simply of an ingenious, well-written book, unfortunate in its facts, and not always happy in its reasonings."

We have thought that our readers would be gratified by such extracts from the 'Foot-prints' as exhibit purely phytological objections to the Vestigian hypothesis of development. We use the term *Vestigian* advisedly, as being more intelligible, or at all events more popu-

lar than *Lamarckian*; especially as the author of the 'Vestiges' has so ingeniously modified and remodelled the views of the older writer as to have made them in great measure his own.

Mr. Miller opens his volume with an interesting description of a visit to Orkney two years back, "while engaged in prosecuting the self-imposed task of examining in detail the various fossiliferous deposits of Scotland," in the hope of ultimately acquainting himself with them all. On this visit he resided for some time in the vicinity of Stromness. This town stands *at the bottom* of the upturned geological deposits of the island of Orkney. "The geology of the island," says the author, "owes its chief interest to the immense development which it exhibits of one formation,—the Lower Old Red Sandstone,—and to the extraordinary abundance of its vertebrate remains;" so abundant indeed are the ichthyolites of the formation at this particular locality, that, as the author observes, were the trade once fairly opened, these remains could be thence supplied, by the ton and by the shipload, to the museums of the whole world.

We need not be detained by the author's geological explorations of this district, interesting as they are, since our business is with the botanical portion of his volume; suffice it here to say that he was rewarded in his researches on the first evening of his sojourn at Stromness, by the discovery of their principal object, in the form of a well-marked bone, probably the oldest vertebrate remain yet discovered in Orkney, imbedded in a grayish coloured layer of hard flag, and in form closely resembling a large roofing-nail, which he figures, as we believe, for the first time. "This nail-like bone formed a characteristic portion of the *Asterolepis*,—so far as is yet known the most gigantic ganoid of the Old Red Sandstone, and, judging from the *place* of the fragment, one of the first."

Passing over the reflections to which the discovery of this interesting fragment *in situ* naturally give rise, we will now accompany him to another locality, as interesting to the botanist as the more immediate vicinity of Stromness is to the palæontologist.

"I extended my researches, a few days after, in an easterly direction from the town of Stromness, and walked for several miles along the shores of the Loch of Stennis,—a large lake about fourteen miles in circumference, bare and treeless, like all the other lakes and lochs of Orkney, but picturesque of outline, and divided into an upper and lower sheet of water by two low, long promontories, that jut out from opposite sides, and so nearly meet in the middle as to be connected by a thread-like line of road, half mound, half bridge. 'The Loch

of Stennis,' says Mr. David Vedder, the sailor-poet of Orkney, 'is a beautiful Mediterranean in miniature.' It gives admission to the sea by a narrow straight, crossed, like that which separates the two promontories in the middle, by a long rustic bridge; and, in consequence of this peculiarity, the lower division of the lake is salt in its nether reaches and brackish in its upper ones, while the higher division is merely brackish in its nether reaches, and fresh enough in its upper ones to be potable. Viewed from the east, in one of the long, clear, sunshiny evenings of the Orkney summer, it seems not unworthy the eulogium of Vedder. There are moory hills and a few rude cottages in front; and in the background, some eight or ten miles away, the bold, steep mountain masses of Hoy; while on the promontories of the lake, in the middle distance, conspicuous in the landscape, from the relief furnished by the blue ground of the surrounding waters, stand the tall gray obelisks of Stennis,—one group on the northern promontory, the other on the south,—

‘ Old even beyond tradition’s breath.’

“ The shores of both the upper and lower divisions of the lake were strewed, at the time I passed, by a line of *wrack*, consisting, for the first few miles from where the lower loch opens to the sea, of only marine plants, then of marine plants mixed with those of fresh-water growth, and then, in the upper sheet of water, of lacustrine plants exclusively. And the fauna of the loch is, I was informed, of as mixed a character as its flora,—the marine and fresh-water animals having each their own reaches, with certain debateable tracts between, in which each kind expatiates with more or less freedom, according to its specific nature and constitution,—some of the sea-fish advancing far on the fresh-water, and others, among the proper denizens of the lake, encroaching far on the salt. * * * But the change induced in the two floras of the lake,—marine and lacustrine,—is considerably more palpable and obvious than that induced in its two faunas. As I passed along the strait, through which it gives admission to the sea, I found the commoner fucoids of our sea-coasts streaming in great luxuriance in the tideway, from the stones and rocks of the bottom. I marked, among the others, the two species of kelp-weed, so well known to our Scotch kelp-burners,—*Fucus nodosus* and *F. vesiculosus*,—flourishing in their uncurtailed proportions; and the not inelegant *Halydrys siliquosa*, or ‘ tree in the sea,’ presenting its amplest spread of pod and frond. A little farther in, *Halidrys* and *Fucus nodosus*

disappear, and *Fucus vesiculosus* becomes greatly stunted, and no longer exhibits its characteristic double rows of bladders. But for mile after mile it continues to exist, blent with some of the hardier *Confervæ*, until at length it becomes as dwarfish and nearly as slim of frond as the *Confervæ* themselves; and it is only by tracing it through the intermediate forms that we succeed in convincing ourselves that, in the brown stunted tufts of from one to three inches in length, which continue to fringe the middle reaches of the lake, we have in reality the well-known *Fucus* before us. Rushes, flags, and aquatic grasses may now be seen standing in diminutive tufts out of the water; and a terrestrial vegetation at least continues to exist, though it can scarcely be said to thrive, on banks covered by the tide at full. The lacustrine flora increases, both in extent and luxuriance, as that of the sea diminishes; and in the upper reaches we fail to detect all trace of marine plants: the *Algæ*, so luxuriant of growth along the straits of this 'miniature Mediterranean,' altogether cease; and a semi-aquatic vegetation attains, in turn, to the state of fullest development anywhere permitted by the temperature of this northern locality. A memoir descriptive of the Loch of Stennis and its productions, animal and vegetable, such as old Gilbert White of Selborne could have produced, would be at once a very valuable and curious document, important to the naturalist, and not without its use to the geological student.

"I know not how it may be with others; but the special phenomena connected with Orkney that most decidedly bore fruit in my mind, and to which my thoughts have most frequently reverted, were those exhibited in the neighbourhood of Stromness. I would more particularly refer to the characteristic fragment of *Asterolepis*, which I detected in its lower flag-stones, and to the curiously mixed, semi-marine, semi-lacustrine vegetation of the Loch of Stennis. Both seem to bear very directly on that development hypothesis,—fast spreading among an active and ingenious order of minds, both in Britain and America, and which has been long known upon the Continent,—that would fain transfer the work of creation from the department of miracle to the province of natural law, and would strike down, in the process of removal, all the old landmarks, ethical and religious."—p. 9.

Before we introduce to the notice of the reader the author's ingenious application of the above facts to the development hypothesis, let us accompany him on a more extended tour of observation, wherein we shall find that the boundary line between the vegetation of land and water, so clearly defined upon the shores of the Loch of Stennis, as distinctly separates the marine and littoral floras of the

sea-coasts of our island home. Reverting to his former observations, the author thus introduces the subject:—

“What does experience say regarding the transmutative conversion of a marine into a terrestrial vegetation,—that experience on which the sceptic founds so much? As I walked along the green edge of the Lake of Stennis, selvaged by the line of detached weeds with which a recent gale had strewed its shores, and marked that for the first few miles the accumulation consisted of marine Algæ, here and there mixed with tufts of stunted reeds or rushes, and that as I receded from the sea it was the Algæ that became stunted and dwarfish, and that the reeds, aquatic grasses, and rushes, grown greatly more bulky in the mass, were also more fully developed individually, till at length the marine vegetation altogether disappeared, and the vegetable *débris* of the shore became purely lacustrine,—I asked myself whether here, if anywhere, a transition flora between lake and sea ought not to be found? For many thousand years ere the tall gray obelisks of Stennis, whose forms I saw this morning reflected in the water, had been torn from the quarry, or laid down in mystic circle on their flat promontories, had this lake admitted the waters of the sea, and been salt in its lower reaches and fresh in its higher. And during this protracted period had its quiet, well-sheltered bottom been exposed to no disturbing influences through which the delicate process of transmutation could have been marred or arrested. Here, then, if in any circumstances, ought we to have had, in the broad permanently brackish reaches, at least indications of a vegetation intermediate in its nature between the monocotyledons of the lake and the Algæ of the sea; and yet not a vestige of such an intermediate vegetation could I find among the up-piled *débris* of the mixed floras, marine and lacustrine. The lake possesses no such intermediate vegetation. As the water freshens in its middle reaches, the Algæ become dwarfish and ill-developed; one species after another ceases to appear, as the habitat becomes wholly unfavourable to it; until at length we find, instead of the brown, rootless, flowerless fucoids and *Confervæ* of the ocean, the green, rooted, flower-bearing flags, rushes, and aquatic grasses of the fresh water. Many thousands of years have failed to originate a single intermediate plant. And such, tested by a singularly extensive experience, is the general evidence.

“There is scarcely a chain-length of the shores of Britain and Ireland that has not been a hundred and a hundred times explored by the botanist,—keen to collect and prompt to register every rarity of the vegetable kingdom; but has he ever yet succeeded in transfer-

ring to his herbarium a single plant caught in the transition state? Nay, are there any of the laws under which the vegetable kingdom exists better known than those laws which fix certain species of the Algæ to certain zones of coast, in which each, according to the overlying depth of water and the nature of the bottom, finds the only habitat in which it can exist? The rough-stemmed tangle (*Laminaria digitata*) can exist no higher on the shore than the low line of ebb during stream-tides; the smooth-stemmed tangle (*L. saccharina*) flourishes along an inner belt, partially uncovered during the ebbs of the larger neaps; the forked and cracker kelp-weeds (*Fucus serratus* and *F. nodosus*) thrive in a zone still less deeply covered by water, and which even the lower neaps expose. And at least one other species of kelp-weed, the *Fucus vesiculosus*, occurs in a zone higher still, though, as it creeps upwards on the rocky beach, it loses its characteristic bladders, and becomes short and narrow of frond. The thick brown tufts of *Fucus canaliculatus*, which in the lower and middle reaches of the Lake of Stennis I found heaped up in great abundance along the shores, also rises high on rocky beaches,—so high in some instances, that during neap tides it remains uncovered by the water for days together. If, as is not uncommon, there be an escape of land-springs along the beach, there may be found, where the fresh water oozes out through the sand and gravel, an upper terminal zone of the Confervæ, chiefly of a green colour, mixed with the ribbon-like green laver (*Ulva latissima*), the purplish-brown laver (*Porphyra laciniata*), and still more largely with the green silky Enteromorpha (*E. compressa*). And then, decidedly within the line of the storm-beaches of winter,—not unfrequently in low sheltered bays, such as the Bay of Udale or of Nigg, where the ripple of every higher flood washes,—we may find the vegetation of the land,—represented by the sentinels and picquets of its outposts,—coming down, as if to meet with the higher-growing plants of the sea. In salt marshes the two vegetations may be seen, if I may so express myself, dovetailed together at their edges,—at least one species of club-rush (*Scirpus maritimus*) and the common salt-wort and glass-wort (*Salsola Kali* and *Salicornia procumbens*), encroaching so far upon the sea as to mingle with a thinly-scattered and sorely-diminished *Fucus*,—that bladderless variety of the *Fucus vesiculosus* to which I have already referred, and which may be detected in such localities, shooting forth its minute brown fronds from the pebbles. On rocky coasts, where springs of fresh water come trickling down along the fissures of the precipices, the observer may see a variety of *Rhodomenia palmata*,—

the fresh-water dulse of the Moray Frith,—creeping upwards from the lower limits of production, till just where the common gray *Balanus* ceases to grow. And there, short and thick, and of a bleached yellow hue, *it* ceases also; but one of the commoner marine *Confervæ*,—the *Conferva arcta*, blent with a dwarfed *Enteromorpha*,—commencing a very little below where the dulse ends, and taking its place, clothes over the runnels with its covering of green for several feet higher: in some cases, where it is frequently washed by the upward dash of the waves, it rises above even the flood-line; and in some crevice of the rock beside it, often as low as its upper edge, we may detect stunted tufts of the sea-pink or of the scurvy-grass. But while there is thus a vegetation intermediate *in place* between the land and the sea, we find, as if it had been selected purposely to confound the transmutation theory, that it is in no degree intermediate in character. For, while it is chiefly marine weeds of the lower division of the *Confervæ* that creep upwards from the sea to meet the vegetation of the land, it is chiefly terrestrial plants of the higher division of the dicotyledons that creep downwards from the land to meet the vegetation of the sea. The salt-worts, the glass-worts, the *Arenaria*, the thrift, and the scurvy-grass, are all dicotyledonous plants. Nature draws a deeply-marked line of division where the requirements of the transmutative hypothesis would demand the nicely graduated softness of a shaded one; and, addressing the strongly marked floras on either hand, even more sternly than the waves themselves, demands that to a certain definite bourne should they come, and no farther.”—p. 240.

Turning now to the chapter upon the “Lamarckian Hypothesis of the Origin of Plants” and its consequences, we find the discovery of a new animal organism in the lowest member of a geological group, and the flora of Stennis and its shores, thus applied:—

“I have said that the curiously-mixed, semi-marine, semi-lacustrine flora of the Lake of Stennis became associated in my mind, like the ancient *Asterolepis* of Stromness, with the development hypothesis. The fossil, as has been shown, represents not inadequately the geologic evidence in the question,—the mixed vegetation of the lake may be regarded as forming a portion of the phytological evidence.

“‘All life,’ says Oken, ‘is from the sea. Where the sea organism, by self-elevation, succeeds in attaining into form, there issues forth from it a higher organism. Love arose out of the sea-foam. The primary mucus (that in which electricity originates life) was, and is still, generated in those very parts of the sea where the water is in contact with earth and air, and thus upon the shores. The first crea-

tion of the organic took place where the first mountain summits projected out of the water,—indeed, without doubt, in India, if the Himalaya be the highest mountain. *The first organic forms, whether plants or animals, emerged from the shallow parts of the sea.* Maillet wrote to exactly the same effect a full century ago. ‘In a word,’ we find him saying, in his ‘Telliamed,’ ‘do not herbs, plants, roots, grains, and all of this kind that the earth produces and nourishes, come from the sea? Is it not at least natural to think so, since we are certain that all our habitable lands came originally from the sea? Besides, in small islands far from the continent, which have appeared but a few ages ago at most, and where it is manifest that never any man had been, we find shrubs, herbs, roots, and sometimes animals. Now, you must be forced to own, either that these productions owed their origin to the sea, or to a new creation, which is absurd.’

“It is a curious fact,” continues Mr. Miller, “to which, in the passing, I must be permitted to call the attention of the reader, that all the leading assertors of the development hypothesis have been bad geologists. Maillet had for his errors and deficiencies the excellent apology that he wrote more than a hundred years ago, when the theory of a universal ocean, promulgated by Leibnitz nearly a century earlier, was quite as good as any of the other theories of the time, and when Geology, as a science, had no existence. And so we do not wonder at an ignorance which was simply that of his age, when we find him telling his readers that plants *must* have originated in the sea, seeing that ‘all our habitable lands came originally from the sea;’ meaning, of course, by the statement, not at all what the modern geologist would mean were he to employ even the same words, but simply that there was a time when the universal ocean covered the whole globe, and that, as the waters gradually diminished, the loftier mountain summits and higher table-lands, in appearing in their new character as islands and continents, derived their flora from what, in a universal ocean, could be the only possibly existing flora,—that of the sea. But what shall we say of the equally profound ignorance manifested by Professor Oken, a living authority, whom we find pre-facing for the Ray Society, in 1847, the English translation of his ‘Elements of Physio-philosophy’? ‘The first creation of the organic took place,’ we find him saying, ‘where the first mountain summits projected out of the sea,—indeed, without doubt, in India, if the Himalaya be the highest mountain.’ Here, evidently, in this late age of the world, in which Geology *does* exist as a science, do we find the ghost of the universal ocean of Leibnitz walking once more,

as if it had never been laid. Is there now in all Britain even a tyro geologist so unacquainted with geological fact as not to know that the richest flora which the globe ever saw had existed for myriads of ages, and then, becoming extinct, had slept in the fossil state for myriads of ages more, ere the highest summits of the Himalayan range rose over the surface of the deep? The Himalayas disturbed, and bore up along with them in their upheaval, vast beds of the oolitic system.* Belemnites and ammonites have been dug out of their sides along the line of perpetual snow, seventeen thousand feet over the level of the sea. What in the recent period form the loftiest mountains of the globe, existed as portions of a deep-sea bottom, swum over by the fishes and reptiles of the great secondary period, when what is now Scotland, had its dark forests of stately pine,—represented in the present age of the world by the lignites of Helmsdale, Eathie, and Eigg,—and when the plants of a former creation lay dead and buried deep beneath, in shales and fire-clay,—existing as vast beds of coal, or entombed in solid rock, as the brown massy trunks of Granton and Craighleith. And even ere these last existed as living trees, the coniferous lignite of the Lower Old Red Sandstone found at Cromarty had passed into the fossil state, and lay as a semi-calcareous, semi-bituminous mass, amid perished Dipterians and extinct Coccostei. So much for the Geology of the German Professor. And be it remarked, that the *actualities* in this question can be determined only by the geologist. The mere naturalist may indicate from the analogies of his science, what possibly *might* have taken place; but what really *did* take place, and the true order in which the events occurred, it is the part of the geologist to determine. It cannot be out of place to remark farther, that geological discovery is in no degree responsible for the infidelity of the development hypothesis; seeing that, in the first place, the hypothesis is *greatly more ancient than the discoveries*, and, in the second, that its more prominent assertors are *exactly the men who know least of geological fact*.

“The author of the ‘Vestiges’ is at one, regarding the supposed marine origin of terrestrial plants, with Maillet and Oken; and he regards the theory, we find him stating in his ‘Explanations,’ as the true key to the well-established fact, that the vegetation of groups of islands generally corresponds with that of the larger masses of land in their neighbourhood. Marine plants of the same kinds crept out of the sea, it would seem, upon the islands on the one hand, and upon the larger masses of land on the other, and thus produced the same

flora in each ; just as tadpoles, after passing their transition state, creep out of their canal or river on the opposite baaks, and thus give to the fields or meadows on the right hand a supply of frogs, of the same appearance and size as those poured out upon the fields and meadows of the left.”—p. 219.

Mr. Miller here quotes from the ‘*Vestiges*’ a passage wherein the author of that work, after citing several several striking examples of a correspondence of form in the floras of neighbouring lands, propounds his own hypothesis of “*a spread of terrestrial vegetation from the sea into the lands adjacent*,” as a much “*simpler cause*” of such correspondence than Professor Forbes’s surmise “that the spaces now occupied by the intermediate seas must have been dry land at the time when these floras were created ;” and asserts as a fact, admitting of no dispute, that “the community of forms in the various regions opposed to each other merely indicates a distinct marine creation in each of the oceanic areas respectively interposed, and which would naturally advance into the lands nearest to it, as far as circumstances of soil and climate were found agreeable.” One obvious consequence of a belief in this *simpler* mode of distribution would be the necessity of holding, contrary to all experience, that *dulse* and *henware** became, through a very wonderful metamorphosis, cabbage and spinach ; that kelp-weed and tangle bourgeoned into oaks and willows ; and that *slack*, *rope-weed*, *green raw*† shot up into mangel-wurzel, rye-glass and clover !” Well may we exclaim with our author, “*Simple*, certainly !”—especially as the time allowed by the author of the ‘*Vestiges*’ for the operation of all these marvellous transmutations, whereby “fucoids and confervas became dicotyledonous and monocotyledonous plants,” was so brief that not a single whorl in the shell of *Purpura lapillus* or of *Turritella terebra* was altered during that period, nor did the slightest change occur in the minute projections of the hinges of *Cyprina Islandica* or *Astarte borealis*, or in any of the nicer peculiarities of their muscular impressions.

From the chapter on the evidence afforded by the Silurian molluscs and the fossil flora, we quote a passage relating to the contemporaneous existence of some of the higher forms of vegetation with those of a far lower class, during the carboniferous period of the earth’s history, and the true bearing of this now well ascertained fact upon the development hypothesis, into the service of which has

* *Rhodymenia palmata* and *Alaria esculenta*.

† *Porphyra laciniata*, *Chorda filum*, and *Enteromorpha compressa*.

been pressed the geological history alike of animal and vegetable organisms.

“It is not much more than twenty years since it was held that no exogenous plant existed during the carboniferous period. The frequent occurrence of Coniferæ in the secondary deposits had been conclusively determined from numerous specimens; but, founding on what seemed a large amount of negative evidence, it was concluded that, previous to the liassic age, Nature had failed to achieve a tree, and that the rich vegetation of the coal measures had been exclusively composed of magnificent immaturities of the vegetable kingdom,—of gigantic ferns and club-mosses, that attained to the size of forest trees, and of thickets of the swamp-loving horse-tail family of plants, that well-nigh rivalled in height those forests of masts which darken the rivers of our great commercial cities. Such was the view promulgated by M. Adolphe Brongniart; and it may be well to remark that, so far as the evidence on which it was based was positive, the view was sound. It is a fact, that inferior orders of plants were developed in those ages in a style which in their present state of degradation they never exemplify: they took their place, not, as now, among the pigmies and abortions of creation, but among its tallest and goodliest productions. It is, however, *not* a fact that they were the highest vegetable forms of their time. True exogenous trees also existed in great numbers and of vast size. In various localities in the coal-fields of both England and Scotland,—such as Lennel Braes and Allan Bank in Berwickshire, High-Heworth, Fellon, Gateshead, and Wideopen near Newcastle-upon-Tyne, and in quarries to the west of the city of Durham,—the most abundant fossils of the system are its true woods. In the quarry of Craigleith, near Edinburgh, three huge trunks have been laid open during the last twenty years, within the space of about a hundred and fifty yards, and two equally massy trunks, within half that space, in the neighbouring quarry of Granton,—all low in the coal measures. They lie diagonally athwart the strata,—at an angle of about thirty,—with the nether and weightier portions of their boles below, like snags in the Mississippi; and we infer, from their general direction, that the stream to which they reclined must have flowed from nearly north-east to south-west. The current was probably that of a noble river, which reflected on its broad bosom the shadow of many a stately tree. With the exception of one of the Granton specimens, which still retains its strong-kneed roots, they are all mere portions of trees, rounded at both ends, as if by attrition or decay; and yet one of these portions

measures about six feet in diameter by sixty-one feet in length ; another, four feet in diameter by seventy feet in length ; and the others, of various thickness, but all bulky enough to equal the masts of large vessels, range in length from thirty-six to forty-seven feet. It seems strange to one who derives his supply of domestic fuel from the Dalkeith and Falkirk coal-fields, that the carboniferous flora could ever have been described as devoid of trees. I can scarce take up a piece of coal from beside my study fire, without detecting in its fragments of carbonized wood, which almost always exhibit the characteristic longitudinal fibres, and not unfrequently the medullary rays. Even the trap rocks of the district inclose, in some instances, their masses of lignite, which present in their transverse sections, when cut by the lapidary, the net-like reticulations of the Coniferæ. The fossil botanist who devoted himself chiefly to the study of microscopic structure would have to decide, from the facts of the case, not that trees were absent during the carboniferous period, but that, in consequence of their having been present in amazing numbers, their remains had entered more palpably and extensively into the composition of coal than those of any other vegetable. So far as is yet known, they all belonged to the two great divisions of the coniferous family, araucarians and pines. The huge trees of Craigleith and Granton were of the former tribe, and approximate more nearly to *Altingia excelsa*, the Norfolk-Island pine,—a noble araucarian, that rears its proud head from a hundred and sixty to two hundred feet over the soil, and exhibits a green and luxuriant breadth of foliage rare among the Coniferæ,—than any other living tree.

“Beyond the coal measures terrestrial plants become extremely rare. The fossil botanist, on taking leave of the lower carboniferous beds, quits the land, and sets out to sea ; and it seems in no way surprising, that the specimens which he there adds to his herbarium should consist mainly of Fucaceæ and Conserveæ. The development hypothesis can borrow no support from the simple fact, that while a high terrestrial vegetation grows upon dry land, only Algæ grow in the sea ; and even did the Old Red Sandstone and Silurian systems furnish, as their vegetable organisms, fucoids exclusively, the evidence would amount to no more than simply this, that the land of the Palæozoic periods produced plants of the land, and the sea of the Palæozoic periods produced plants of the sea.”—p. 185.

The three formations of the Old Red Sandstone—the Upper, the Middle, and the Lower—seem to have had each its own peculiar flora. In the Upper, the only vegetable remains met with appear to

be those of "sorely comminuted fucoids;" the vegetable remains of the Middle, "are at once more numerous and better defined;" but still they are the remains of fucoid plants; while the fossil flora of the Lower Old Red apparently consists of but two species—the one, a plant resembling a *Lycopodium* more than aught else, the other, a smooth-stemmed fucoid. These two plants are figured as fossil impressions upon a block of stone. A third form, however, is given from a unique specimen found in a quarry at Skail, in Orkney, which greatly resembles a minute dichotomously branched *Botrychium* or *Asplenium*.

Mr. Miller gives a series of magnified figures, variously placed, of the lignite referred to in his work on the 'Old Red Sandstone,' as having been found in that formation at Cromarty. The nodule which inclosed it was imbedded, with many others "half-disinterred by the sea, in an ichthyolitic deposit, a few hundred yards to the east of the town of Cromarty, which occurs more than four hundred feet over the great conglomerate base of the system." The nodule which contained the lignite, contained also some "scales of *Diplacanthus*, a scarce less characteristic organism of the lower formation;" thus its veritable position in the system is unfailingly indicated. A recent and searching microscopic investigation of this interesting lignite has revealed its true character, namely, that of a fragment of fossil coniferous wood, of undoubted araucarian relationship. The following quotation refers to the evidence furnished by this most interesting organic remain.

"The olive leaf which the dove brought to Noah established at least three important facts, and indicated a few more. It showed most conclusively that there was dry land, that there were olive trees, and that the climate of the surrounding region, whatever change it might have undergone, was still favourable to the development of vegetable life. And, farther, it might be very safely inferred from it, that if olive trees had survived, other trees and plants must have survived also; and that the dark muddy prominences round which the ebbing currents were fast sweeping to lower levels, would soon present, as in antediluvian times, their coverings of cheerful green. The olive leaf spoke not of merely a partial, but of a general vegetation. Now, the coniferous lignite of the Lower Old Red Sandstone we find charged, like the olive leaf, with a various and singularly interesting evidence. It is something to know, that in the times of the *Coccos-teus* and *Asterolepis* there existed dry land, and that that land wore, as at after periods, its soft, gay mantle of green. It is something also

to know, that the verdant tint was not owing to a profuse development of the mere immaturities of the vegetable kingdom,—crisp, slow-growing lichens, or watery spore-propagated fungi that shoot up to their full size in a night,—nor even to an abundance of the more highly organized families of the liver-worts and the mosses. These may have abounded then, as now; though we have not a shadow of evidence that they did. But while we have no proof whatever of *their* existence, we have conclusive proof that there existed orders and families of a rank far above them. On the dry land of the Lower Old Red Sandstone, on which, according to the theory of Adolphe Brongniart, nothing higher than a lichen or a moss could have been expected, the ship-carpenter might have hopefully taken axe in hand, to explore the woods for some such stately pine as the one described by Milton,—

‘ Hewn on Norwegian hills, to be the mast
Of some great admiral!’ ”

—p. 200.

The concluding chapter of the volume, that on “Final Causes—Their Bearing on Geologic History,” appropriately commences with Cuvier’s observation, that “Natural History has a principle on which to reason, which is peculiar to it, and which it employs advantageously on many occasions: it is that of the *conditions of existence*, commonly termed *final causes*.” In amplifying on these words, the author well remarks that “in Geology, which is Natural History extended over all ages, this principle has a still wider scope,—embracing not merely the characteristics and conditions of the beings which now exist, but of all, so far as we can learn regarding them, which have ever existed,—and involving the consideration of not merely their peculiarities as races placed before us without relation to time, but also of the history of their rise, increase, decline, and extinction.” To rise, increase, decline, and finally to become extinct, seems to be the lot of all created beings—“all bear the stamp of death,—individuals,—nations,—species.” Geology makes us acquainted with the fact, that “in the course of creation the higher orders succeeded the lower,” but this succession was one of *order*, not of *development*; a higher order of animated organisms would appear to have been successively called into being so soon as the earth became fitted for its reception; and “it is in the style and character of the *dwelling-place* that gradual improvement seems to have taken place,—not in the functions or the ranks of any class of its inhabitants; and it is with special reference to this gradual improvement in our common man-

sion-house, the earth, in its bearings on the 'conditions of existence,' that not a few of our reasonings regarding the introduction and extinction of species and genera must proceed."

Reasoning upon the well-grounded supposition that the earth was destined eventually to become the dwelling place of a being, "the sum total of all animals,—the animal equivalent to the whole animal kingdom," as Oken calls man, Mr. Miller well observes that the "definite period at which man was introduced upon the scene seems to have been specially determined by the conditions of correspondence which the phenomena of his habitation had at length come to assume with the predestined constitution of his mind." This position he illustrates by reference to the peculiar impression made upon the mind of man by the occurrence of those now comparatively rare phenomena, earthquakes. And after quoting from Humboldt and Tschudi their graphic descriptions of the effects of earthquakes upon the human mind, he thus continues:—

"Now, a partially consolidated planet, tempested by frequent earthquakes, of such terrible potency, that those of the historic ages would be but mere ripples of the earth's surface in comparison, could be no proper home for a creature so constituted. The fish or reptile,—animals of a limited range of instinct, exceedingly tenacious of life in most of their varieties, oviparous, prolific, and whose young immediately on their escape from the egg can provide for themselves, might enjoy existence in such circumstances, to the full extent of their narrow capacities; and when sudden death fell upon them,—though their remains, scattered over wide areas, continue to exhibit that distortion of posture incident to violent dissolution, which seems to speak of terror and suffering,—we may safely conclude there was but little real suffering in the case; they were happy up to a certain point, and unconscious for ever after. Fishes and reptiles were the proper inhabitants of our planet during the ages of the earth-tempests; and when, under the operation of the chemical laws, these had become less frequent and terrible, the higher mammals were introduced. That prolonged ages of these tempests did exist, and that they gradually settled down, until the state of things became at length comparatively fixed and stable, few geologists will be disposed to deny. The evidence which supports *this* special theory of the development of our planet in its capabilities as a scene of organized and sentient being, seems palpable at every step. Look first at these grauwacke rocks; and, after marking how in one place the strata have been upturned on their edges for miles together, and how in another the Plutonic rock has

risen molten from below, pass on to the old red sandstone, and examine its significant platforms of violent death,—its faults, displacements, and dislocations; see, next, in the coal measures, those evidences of sinking and ever-sinking strata, for thousands of feet together; mark in the oolite those vast over-lying masses of trap, stretching athwart the landscape, far as the eye can reach; observe carefully how the signs of convulsion and catastrophe gradually lessen as we descend to the times of the tertiary, though even in these ages of the mammiferous quadruped, the earth must have had its oft-recurring ague fits of frightful intensity; and then, on closing the survey, consider how exceedingly partial and unfrequent these earth-tempests have become in the recent periods. Yes; we find everywhere marks of at once progression and identity,—of progress made, and yet identity maintained; but it is in the habitation that we find them,—not in the inhabitant.”—p. 286.

The author, in continuation of this interesting subject, here adduces examples of vast tracts of country inundated by overflows of once liquid trap rock to the depth of several hundred feet, as occurring in Hindustan, in southern Africa, and even, though on a far more limited scale, in Scotland; and asks,

“What could man have done on the globe at a time when such outbursts were comparatively common occurrences? What could he have done where Edinburgh now stands during that overflow of trap porphyry of which the Pentland range forms but a fragment, or that outburst of greenstone of which but a portion remains in the dark ponderous coping of Salisbury Craigs, or when the thick floor of rock on which the city stands was broken up, like the ice of an arctic sea during a tempest in spring, and laid on edge from where it leans against the Castle Hill to beyond the quarries at Joppa? The reasoning brain would have been wholly at fault in a scene of things in which it could neither foresee the exterminating calamity while yet distant, nor control it when it had come; and so the reasoning brain was not produced until the scene had undergone a slow but thorough process of change; during which, at each progressive stage, it had furnished a platform for higher and still higher life. When the Coniferæ could flourish on the land, and fishes subsist in the seas, fishes and cone-bearing plants were created; when the earth became a fit habitat for reptiles and birds, reptiles and birds were produced; with the dawn of a more stable and mature state of things the sagacious quadruped was ushered in; and, last of all, when man’s house was fully prepared for him,—when the data on which it is his nature to reason

and calculate had become fixed and certain,—the reasoning, calculating brain was moulded by the creative finger, ‘and man became a living soul.’ Such seems to be the true reading of the wondrous inscription chiselled deep in the rocks. It furnishes us with no clue by which to unravel the unapproachable mysteries of creation; these mysteries belong to the wondrous Creator, and to Him only. We attempt to theorize upon them, and to reduce them to law, and all nature rises up against us in our presumptuous rebellion. A stray splinter of cone-bearing wood,—a fish’s skull or tooth,—the vertebra of a reptile,—the humerus of a bird,—the jaw of a quadruped,—all, any of these things, weak and insignificant as they may seem, become in such a quarrel too strong for us and our theory: the puny fragment, in the grasp of truth, forms as irresistible a weapon as the dry bone did in that of Sampson of old; and our slaughtered sophisms lie piled up, ‘heaps upon heaps’ before it.”—p. 288.

We ought to conclude with this eloquent passage, but, as “we are nothing if not critical,” we must just hint to our author that Crabbe’s “salt lavender, that lacks perfume,” is not *Statice Armeria* with its flowers *changed* to blue by the influence of sea air (p. 289), but the *naturally* blue-flowered *Statice Limonium* and its allies: and that we doubt whether *Eriocaulon septangulare* (p. 229) is really a native of America, where other species of that genus are common. These, however, are minor defects in a book of great excellence, a book which every one should read, and one that does equal honour to the author’s industry and ability, and to his zeal in the cause of religion and true science.

L.

Remarks on Glyceria fluitans and G. plicata.

By WM. HENRY PURCHAS, Esq.

WHEN looking in this neighbourhood for *Glyceria plicata*, I was much puzzled by the apparent inconstancy of some of the characters given for that plant and *G. fluitans*: a more careful scrutiny has convinced me that their limits are not yet correctly laid down in books, and also, that in addition to forms exhibiting trifling deviations from the type of *G. fluitans*, there is one which appears almost intermediate between that and *G. plicata*, and which, if only a variety of the latter, is well deserving of notice. I believe that other botanists have had suspicions of the kind, while Mr. Townsend has gone so far as to propose a third species,—*G. hybrida*,—but which does not seem to

have met with general acceptance. As the subject is still before the minds of some of our best botanists, I propose, by way of contributing in some degree to its elucidation, to lay before your readers a short account of all the forms which I have hitherto noticed in this district. I do not, however, at all pretend that I have detected the whole of the variations which may occur here, and still less that I have selected all the most salient and available points of distinction between them.

First.—*Glyceria fluitans*. The plants which agree in possessing acute outer pales nearly thrice as long as broad, anthers about five times as long as broad, and acute simply folded leaves, present the following modifications:—

α.—Branches of the fruit panicle appressed.

1. Anthers purple.

β.—Branches of the fruit panicle divaricate.

1. Green,—anthers yellow or purple before bursting.

2. Glauous,—anthers pale yellow before bursting.

Thus it will appear that colour is not at all to be relied on as a distinctive mark. *α.* is the most common of all the forms; I do not recollect to have noticed it with pale yellow, nor the glaucous plant, *β. 2.*, with purple anthers.

Secondly.—*Glyceria plicata*. Of plants which agree in having their outer pales twice as long as broad, obtuse, with three nearly equal teeth, and anthers about three times as long as broad, there are two forms.

α.—A plant which precisely accords with a living plant of *G. plicata* which Mr. T. Moore kindly sent me, and which has flowered, during the past summer, in my garden: from its agreement with this plant, and with the descriptions of Babington and Koch, I take it to be the typical form of Fries's plant: in this the tip of each outer pale seems to reach only *one-third* of the way up the next floret on the same side. In dried examples, for which I am indebted to Mr. Watson and Mr. Moore, the uppermost leaf is much shorter in proportion to its sheath than in the plant I shall next notice,—and I once thought that this might furnish a distinction, but my Ross specimens seem to prove the character too variable to be of any value. The only point in which I have seen the leaves of the cultivated or wild plants differ as regards plicature from those of *G. fluitans*, is in having their margins folded inward; never at all resembling Dr. Lindley's idea of "plicate" (*Elements and Introduction to Botany*); and even this additional fold seems only to be found early in the season, the young leaves produced towards the close of summer being much narrower

than the early ones. Neither wild nor garden plants have at this present time other than simply folded leaves. Koch seems to have noticed the variation of their folding, as he says "*foliis novellis pluries plicatis.*"

I have hitherto seen this plant in one spot only through this neighbourhood, and there by no means luxuriant, for it does not seem to relish its position on the margin of a ditch polluted by sewage. Other stations will probably be found by and bye, but this is evidently much the rarest of all the forms in this district.

β .—A plant which has the short pales and anthers of *G. plicata*, but combined with a more compound panicle, and the acute, green, simply folded leaves of *G. fluitans*. I have attempted to characterize it as follows.

G. ————— Panicle twice compound, nodding at the end; branches mostly in fives, *two compound*, the rest bearing single spikelets, patent in flower, divaricate with fruit; spikelets of eight to fourteen oval, oblong, *closely imbricated* florets; outer pale twice as long as broad, obtuse, with three nearly equal teeth, its summit reaching *half way up* the next floret on the same side; anthers about thrice as long as broad; leaves acute, simply folded; ligule elongate. Whole plant bright green, except the outer pales, which with fruit are, as in α ., tinged near the summit with purple. The leaves are undistinguishable from those of *G. fluitans*,—I have examined them at all seasons of the year, and have never seen them other than simply folded: the panicle has a fuller look than that of α ., from the greater number of compound branches; in all the examples which I have seen of that plant, one alternating branch only of each whorl is compound, the rest bearing single spikelets,—while in this plant two branches at least of each whorl are almost constantly compound; and thus, as they turn in opposite directions, the panicle of α . seems *alternately*, and that of β . *oppositely* branched: the spikelets are more numerous than in the typical plant, but shorter, being composed of fewer and more closely imbricated florets, the summit of each outer pale reaching exactly half way instead of one-third up the next floret on the same side; in spikelets of thirteen florets taken from the panicle of each plant, that of α . exceeded that of β . by the length of a floret: the anthers are shaped like those of the typical plant, and are either purple or pale yellow before bursting. These points though constant, so far as I have been able to observe the plants of this district, may not prove universally so: accordingly, I offer them only as suggestions. This form is pretty generally distributed over a district

of some miles in extent, less commonly indeed than *G. fluitans*, and, unlike that species, evincing a peculiar partiality for running water, its customary resorts being shallow streamlets and the margins of brooks; I do not remember to have noticed it in a single stagnant pool. I have no means of ascertaining whether this is what Mr. Townsend meant by his *G. hybrida*, as no description seems to have been published of that plant, and I have seen no authentic specimens. Whatever rank be conceded to the present plant, it is certainly not of *hybrid* origin: its occurrence in such large quantities in company with *G. fluitans*, while the typical *G. plicata* is almost absent from the neighbourhood, is fatal to such an idea. I should very unwillingly be guilty of hasty or unnatural manufacture of species; and considering the very small amount of good structural characters which I have been able to detect for this plant, I cannot at present claim for it a higher grade than that of variety; yet is it, when once known, so readily distinguishable from α ., that I am desirous of directing the attention of botanists to it, as it most probably occurs elsewhere. Other and better points of distinction between it and *G. plicata* might perhaps have presented themselves had I enjoyed fuller opportunities of studying the latter in a living state: perhaps those who are more fortunate in this respect will look out for the other plant, and make known through your pages the result of a careful comparison.

W. H. PURCHAS.

Ross, Herefordshire, Nov. 17, 1849.

Note on the Discovery of Teucrium Botrys.

By WILLIAM BENNETT, Esq.

As one of the original discoverers of *Teucrium Botrys*, in company with my friend Thomas Ingall, in the neighbourhood of Boxhill, when rambling over that beautiful district in the autumn of 1844, it is with the greatest pleasure and interest I read the account of its rediscovery by G. S. Gibson and W. Borrer, in the last number of the 'Phytologist,' and their opinion of its being most indubitably wild; especially after hearing reports of its extermination, and knowing of unsuccessful attempts to find the plant by several industrious botanists, so as almost to throw doubts upon its authenticity. No one who had seen the plant and its locality could hesitate in pronouncing it truly wild. The spot is peculiarly solitary, at least for being within the range of

a metropolitan county. It is far from any human habitation. The plant is not one ever grown in gardens; nor was that part of the hill-side ever previously known to have been under cultivation, so that it could not have been introduced with the crops; though I have since heard that a portion of it has been ploughed up. I visited the spot several times in the course of that autumn, and sent a living plant still in flower as late as the middle of November to the Secretary of the London Botanical Society. I left that part of the country before the following season, and have never had the opportunity of visiting it since. I grew several plants from seed the following year, but they all went off without coming into bloom.

One of my objects in this communication is to ascertain, if possible, whether G. S. Gibson's is identical with the spot where we first found the plant, or a new locality. Knowing the "piratical tendencies" of some botanists, though gladly supplying specimens to all my friends, I resisted the communication of the exact spot to any but one particular friend. Our locality answers precisely to the description of a rough, stony, steep hill-side; and the plant was scattered pretty plentifully, varying much in the size and growth of the specimens, over a considerable space, but none at the bottom nor very near the top of the side of the hill or rather ravine; and it was not properly on a part of Boxhill, being on the eastern or Reigate side of the ravine, in a direct line between the village of Brockham and Headley Lane, and more correctly a part of Brockham or Headley Hill. That somewhat local plant, *Ajuga Chamæpitys*, grows in great profusion in the fields at the base of Boxhill, on the southern or Brockham side; or rather grew; for a railroad now cuts them all through.

WILLIAM BENNETT.

London, 17th of 11th mo. 1849.

Occurrence of Carex Persoonii in an unrecorded Locality in Yorkshire. By JOHN G. BAKER, Esq.

PERHAPS it may be interesting to some of the readers of the 'Phytologist' to know that in the beginning of the summer of the present year I gathered a few examples of *Carex Persoonii* (*Sieber*) in Snailsworth, the most western of the dales which intersect the group of hills situated in the north-east of Yorkshire.

The station was in a rather boggy wood near the source of the

Locker Beck, a small tributary of the Wheal, the principal stream of the dale. In the same wood *Trientalis europæa* occurred plentifully. The elevation, as nearly as I can calculate, will be about one thousand feet above the level of the sea.

JOHN G. BAKER.

Market Place, Thirsk,
19th of 11th mo. 1849.

Occurrence of Rare Ferns in the Snowdon District.

By EDWARD NEWMAN.

Woodsia Ilvensis. This fern has appeared in unusual abundance during the past season at the old station on a rock above Llyn-y-Cwn. A correspondent writes me for my own information, that as many as about a hundred plants are visible; fortunately, however, nearly the whole of them are inaccessible, and cannot possibly be obtained without the assistance of a ladder.

Woodsia alpina. This fern has occurred in smaller quantities than the above at the old station of Clogwyn-y-Garnedd: two botanists have kindly handed me this information.

Asplenium germanicum. Two plants of this species have been found in the previously recorded locality between Llanrwst and Capel Cerig. I believe it is properly called Bwlch-y-Rhyn, but the spelling of Welsh names seems not to be governed by any fixed law, but to be optional with the tourist. Would it not be wise as well as convenient to adopt the spelling of the Ordnance Survey, thus reducing topographical nomenclature to a fixity, rather than leaving it as at present a mere matter of taste?

Asplenium septentrionale. In twenty localities near Llanrwst, or between that town and Capel Cerig, more particularly in Bwlch-y-Rhyn.

Polystichum Lonchitis. Cwm Idwell and Clogwyn-y-Garnedd, not very sparingly in either locality.

EDWARD NEWMAN.

Devonshire Street, London.

Additional List of the Rarer Plants growing near Colvend.

By PETER GRAY, Esq.

ALLOW me to offer, by way of addendum to the list I furnished last year, a few additional stations in Colvend for less frequently occurring species included in the first volume of Hooker's 'British Flora.' They have been ascertained by my friend, the Rev. James Fraser, in the course of occasional rambles in his interesting parish during the season just elapsed.

Carex extensa. Marshes near the detached rock on the coast, called by the aborigines "Lot's Wife," and about Glenstocking.

—— *distans.* Along almost the whole coast.

Eryngium maritimum. Shore near the mill-stone quarry.

Lycopus europæus. Lockhouse; border of Manse Loch, and several other places.

Cenanthe pimpinelloides. Marshes near Lot's Wife, and sea-side near Glenluffin.

Utricularia minor. Cloak Moss, between Colvend and the parish of Urr.

Osmunda regalis. Waterfall at Lot's Wife.

In a wood between Colvend and the village of Dalbeattie, in the neighbouring parish of Urr, Mr. Fraser also finds *Convallaria majalis*, "to all appearance indigenous." And across the estuary of the Urr, on the walls of the old tower of Orchard-town, in the parish of Buittle, as well as upon the old dyke surrounding it, growing out of the decaying lime, he has found *Ceterach officinarum*. My correspondent also informs me that *Ophioglossum vulgatum* is said to grow abundantly in a marsh in the adjoining parish of Kirkbean. This I shall endeavour to authenticate. I know only one locality in the county of Dumfries for this pretty fern; "a marsh," however, is not, I should think, a likely habitat.

PETER GRAY.

Queen Street, Dumfries,
November 21, 1849.

P. S.—In last year's list *Leonurus Cardiaca* and *Meum athamanticum* were given through some inadvertence on the part of my informant as denizens of Colvend. Neither, I now understand, is known to grow there; although the discovery of the latter is not improbable, as it grows about here in a similar country. I may mention, too, that, confounding the names of two *Carices* similar in meaning, however

distinct the plants are in form, I gave the vicinity of Port o'Warren as a station for *Carex remota* instead of *distans*, which Mr. Fraser has since found elsewhere in abundance. With these exceptions all the stations then given have been authenticated by specimens.

P. G.

Occurrence of Polypodium Phegopteris in Gloucestershire.

By EDWARD T. BENNETT, Esq.

DURING a day's excursion to the Forest of Dean this summer, I had the pleasure of very unexpectedly meeting with that elegant fern *Polypodium Phegopteris*. About a mile and a half above Lydbrook, towards Coleford, out of a low wall by the road-side, grows *Polypodium calcareum*. The station for *Phegopteris* is nearly opposite this, on the other side of the road, a short distance within the wood. It is growing among bushes in a boggy bit of ground; I think in rather an unusual position, its favourite habitat being among moss on rocks and stones, amid the spray of waterfalls. Although a considerable patch of a hundred or two fronds, it had not attained to near that luxuriance and size of frond which makes it such a beautiful object in some more mountainous parts of the country. But it is an interesting addition to the ferns of Gloucestershire, in which county I am not aware that it has been previously recorded.

EDWARD T. BENNETT.

Woodfields, near Ross.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 669).

Statice Limonium. On mud flats and salt marshes; very abundantly on most parts of the shores of the Isle of Wight and mainland Hants that are of this character. Plentiful along the muddy banks of the Medina above Cowes. Banks of the Yar and Wootton Rivers, and in Newtown marshes in the greatest profusion. Yarmouth and Brading harbours in abundance; Mr. W. D. Snooke (Fl. Vect.)!! On

the rocks in Scratchells Bay, near the Needles ; Mr. E. Lees in New Bot. Guide Suppl. May not this station belong to *S. spathulata*, as *S. Limonium* does not usually grow on rocks or cliffs, which the former, I think, invariably does ? (see our third species). Var. *β*. Flowers distant on the branches, see next species, and Ray's Syn. Dillen. edit. p. 202. On the mainland the Sea Lavender abounds about Portsmouth harbour, in Hayling Island, and wherever mud flats are found.

Statice rariflora. In exactly the same places with the last species, from which it is not separated by one constant and tangible character that I can discover, and into which it may be seen passing so insensibly as to preclude the possibility of fixing the limit between them. Side of the Yar near Freshwater Mill ; sparingly. In muddy places about Wootton Creek, intermixed with the ordinary *S. Limonium*, and growing to a large size (two feet or upwards) ; Rev. G. E. Smith !!! Shore at Cams ; the Salterns (near Fareham) ; Mr. W. L. Notcutt !!! I have taken considerable pains to verify the characters laid down for this and the foregoing species by careful comparison of living specimens, and can come to no other conclusion than that already stated. I find in well-marked *S. Limonium* the branches very often strongly incurved, the calyx segments seem to me to differ little or nothing in both, the toothings being very irregular, sometimes well-marked, at other times nearly obsolete. It is true that in the sparse-flowered variety of *S. Limonium* (*S. rariflora*) the outer bracts are in general larger than in the dense-flowered state of the plant, but even this I found to fail occasionally, and if invariable, would be too slight a character to found a species on by itself. Mr. H. C. Watson (Cybele Brit. vol. ii. p. 307) remarks that plants of this supposed species from the southern coast of England, and others from the West Lowland province (S.W. of Scotland) "differ somewhat from each other ;" Mr. W. would find just the same difference in specimens from the same locality on the Hampshire coast as he perceives in examples from distant localities.

—— *spathulata* ? On rocks and cliffs by the sea ; (never ?) on flat or muddy shores ; very rare, if not now extinct, in Hants. Isle of Wight : given (but erroneously) on the authority of the Rev. G. E. Smith in the 'New Botanist's Guide.' In two subsequent communications from my esteemed friend, he tells me he believes it was collected on the cliffs near Freshwater by the Rev. Mr. Wood or the Rev. R. Price. On rocks in Scratchell's Bay ? Mr. E. Lees (see *S. Limonium*). Now apparently destroyed on these ever-crumbling cliffs,

as I have personally searched every accessible spot along the whole range of the majestic chalk rampart from Freshwater Gate westward to the Needles, and round the point into Alum Bay, without success, and have likewise instructed the cliffsmen, in their perilous task of samphire-gathering, to send me any plants of sea lavender they might find on the cliffs, but which they assure me they have not yet fallen in with.* Should these 'Notes' meet his eye, Mr. Lees may perhaps still have it in his power to dispel the doubt, so far as he is concerned, regarding this species as indigenous to the Isle of Wight, by examining his specimens afresh, and communicating the result to the pages of this journal, or through private communication to myself, as he thinks proper; either of which courses I should esteem a favour from that gentleman. Although the existence of *S. spathulata* as a Vectian species rests on somewhat uncertain grounds, I retain it on the list of natives from the respectability of the testimony given, but rather dubiously, by Mr. Smith, and because I think it most probable that the plant of Messrs. Wood and Price and that of Mr. Lees was the same, and in the latter case unlikely to have been *S. Limonium* from the nature of the situation in which it was found growing, besides which, the chalk cliffs of this island are just the localities where the *S. spathulata* may reasonably be supposed to have occurred. I have myself gathered it in precisely analogous places near Dover, where Mr. Smith first noticed it, and published it as a plant new to Britain.

Armeria vulgaris. On rocks, cliffs, banks and pastures by the sea, as well as on the shore itself; abundantly on the island and mainland, along most parts of the coast. By the Medina, the Yar, on the spit at St. Helen's, &c. Var. β . Flowers white; very rare? Amongst the abandoned Salterns near Lymington, towards Milford, in one spot abundantly with the common red sort, June 3rd, 1849. The flowering time of this, as of many other of our native plants, is very incorrectly given in books. The common Thrift begins to flower in ordinary years with us here in April, and is ever in good bloom in May, continuing to blossom on till September, whereas our British authors assign July for the commencement of inflorescence.

* To botanists visiting Freshwater, who may wish to procure specimens of the wild stock, samphire, or other plants inaccessible from above to the longest arm, I would beg to recommend a cliffsmen named Jackman, whom I have been in the habit of employing for some years past, for his civility, intelligence and activity, and who may generally be found in attendance as a boatman at Freshwater Gate on inquiry at Groves's Hotel.

Plantago Coronopus. In dry, sandy, gravelly places, fields, pastures and waste ground, under walls, &c., very common. On Ryde Dover in plenty. Very fine and abundant on the green sand along the coast, as on Royal Heath, and above Sandown Bay, betwixt Sandown and Shanklin. Particularly abundant and luxuriant everywhere on the green sand along the whole line of cliff coast betwixt Blackgang and Compton Bay.

——— *maritima.* In mud flats and salt-marsh meadows and pastures; common on the coasts of the island and mainland. In the meadows behind Ryde Dover in abundance. Muddy sides of the Medina above Cowes. Shores of Brading and Yarmouth harbours, &c., in plenty.

——— *lanceolata.* In meadows, pastures, by road-sides, waste places, &c., everywhere plentiful.

——— *media.* In dry meadows and pastures, particularly on calcareous soils; very frequent over the county and Isle of Wight. About Ventnor and other parts of Undercliff, the prevailing species. Plentiful about Newport, Carisbrook, Thorley, Calborne, and throughout the chalky districts generally. Common on most of the chalk downs and pastures in the county, as about Winchester, Whitchurch, Andover, &c. The prettiest of all our plantains, and very sweet-scented in flower. Sir James Smith recommends for destroying this plant on grass plats, the pouring a drop of sulphuric acid on the crown of the root; a piece of valuable advice to such gardeners as have time to undertake and patience to perform the operation effectually.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
November, 1849.

(To be continued.)

